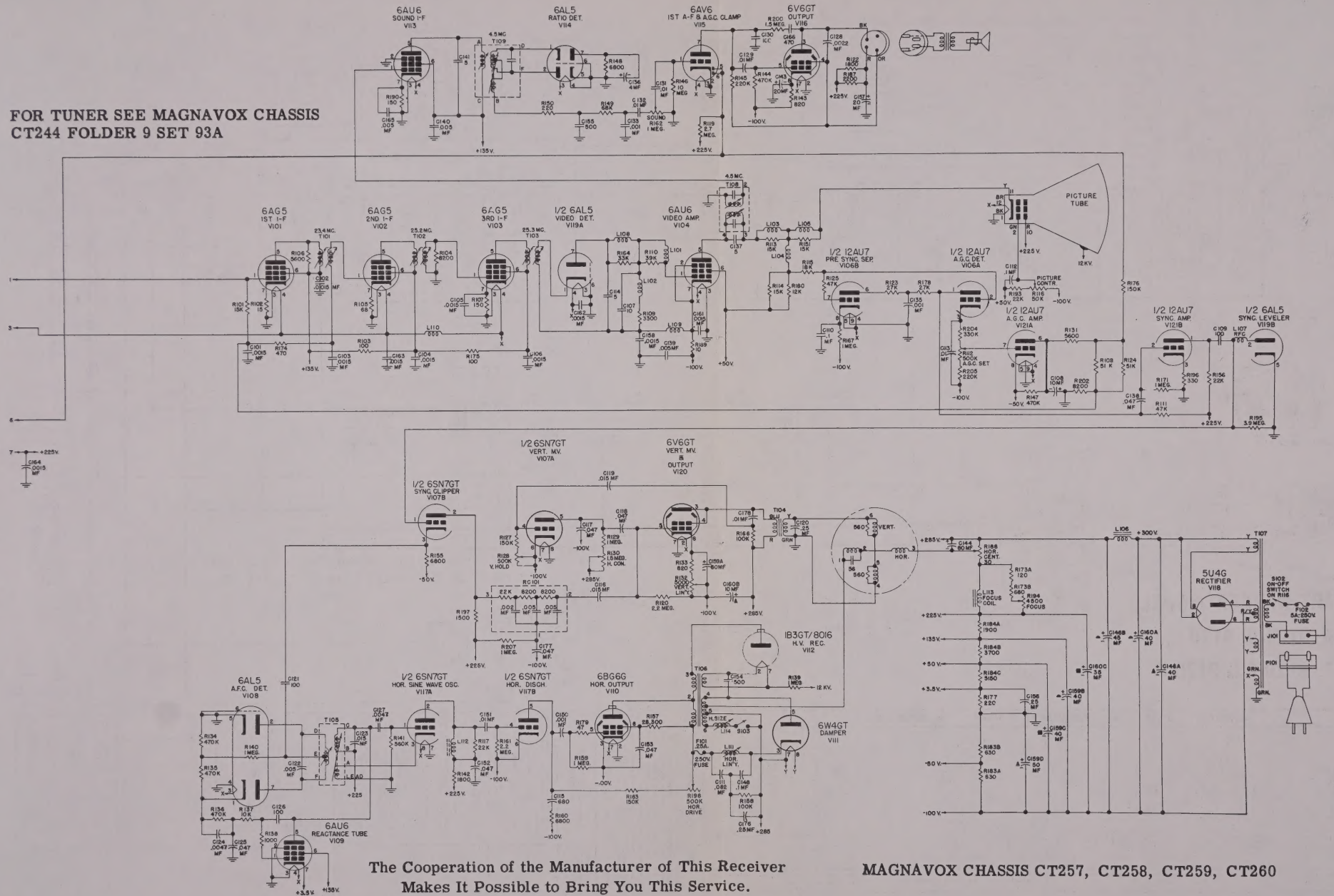
119

CONTENTS

TRADE NAME	MODEL	SET AND FOLDER No.
Aircastle	606-400WB	119-2
Airline	05WG-3030A Tel. Rec.	119-3
Crescent	H-2A1 Series Recorder	119-4
Dumont	RA-112A, RA-113 Tel. Rec.	119-5
Emerson	629B, 629C, 651B (Ch. 120120) Tel. Rec.	119-6
Firestone	4-A-87	119-7
Magnavox	CHASSIS CT257, CT258, CT259, CT260 Tel. Rec.	119-1A
Masco	MA-8N	119-8
Masco	MA-60	119-9
National	TV-1201, TV-1226, TV-1601, TV-1625 Tel. Rec.	119-10
Stewart-Warner	9120-A, -B, -C, -D, -E, -F Tel. Rec.	119-1A
Sylvania	540B, 540H, 540M	119-11
Truetone	2D1093A, 2D1094A Tel. Rec.	119-12
Webster-Chicago	130	119-13

FOR TUNER SEE MAGNAVOX CHASSIS
CT244 FOLDER 9 SET 93A



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Makes It Possible to Bring You This Service.

MAGNAVOX CHASSIS CT257, CT258, CT259, CT260

SPECIAL INSTRUCTIONS FOR REPLACEMENT OF ALTERNATE TYPES OF SWEEP TRANSFORMERS

When replacing a #508679 transformer with a #508971 transformer, or vice versa, the following circuit changes must be made in addition to noting differences in terminal connections.

ITEM	508679 HORIZONTAL SWEEP TRANSFORMER	508971 HORIZONTAL SWEEP TRANSFORMER
Condenser 372	Low potential side connected to cathode (pin 3) of V20 (6CD6G).	Low potential side connected to chassis ground.
Resistor 379	2.2 Ohms.	Not used. Pin 7 (filament of V21 1BQGT/8016 connects directly to filament winding of horizontal sweep transformer.
Condenser 380	1 mfd. 200 volt	.25 mfd. 600 volt
Condenser 381	Low potential side connected to plate (pin 2) of V22 (6W4GT).	Low potential side connected to chassis ground.
Resistor 356	2000 Ohms 2 watt	7500 Ohms 2 watt
Condenser 353	Not used.	Connected between terminals 3 and 6 on transformer (across primary of width coil).

508890 R.F. TUNER ASSEMBLY

508890 TUNER UNIT

BOTTOM VIEW OF CHASSIS SHOWING CONNECTIONS TO RF TUNER UNIT

WHITE — AQ
GREEN-WHITE — AU
RED-WHITE — AS
BLACK-WHITE — AT

THESE POINTS IDENTICALLY LABELLED POINTS AT INPUT TO 1st I.F. STAGE

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STEWART-WARNER MODELS 9120-A, 9120-B, 9120-C, 9120-D, 9120-E & 9120-F

REFERENCE DOT

508667 WIDTH COIL

Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.

ALTERNATE TYPES OF HORIZONTAL SWEEP TRANSFORMERS

508679

RESISTANCE MEASUREMENT
Between terminal 1 & 2— 40 Ohms
Between terminal 2 & 3—400 Ohms
Between terminal 3 & 4— 15 Ohms
Between terminal 4 & 5— 2.5 Ohms

508679

RESISTANCE MEASUREMENT
Between terminal 1 & 2— 40 Ohms
Between terminal 2 & 3—400 Ohms
Between terminal 3 & 4— 1 Ohm
Between terminal 4 & 5— 2.5 Ohms

508679

These three types of transformers all carry the same Part No. and are directly interchangeable.

Connection terminals are numbered to correspond to similarly numbered terminals shown in the complete circuit diagram on this page.

508971

RESISTANCE MEASUREMENT
Between terminal 1 & 2—138 Ohms
Between terminal 2 & 3—620 Ohms
Between terminal 4 & 7— 7.2 Ohms
Between terminal 7 & 5— 7.3 Ohms
Between terminal 5 & 6— 3.8 Ohms

508971

This transformer was also used in some 9120 series chassis but is not directly interchangeable with the above illustrated units unless the sweep circuit is modified as indicated here.

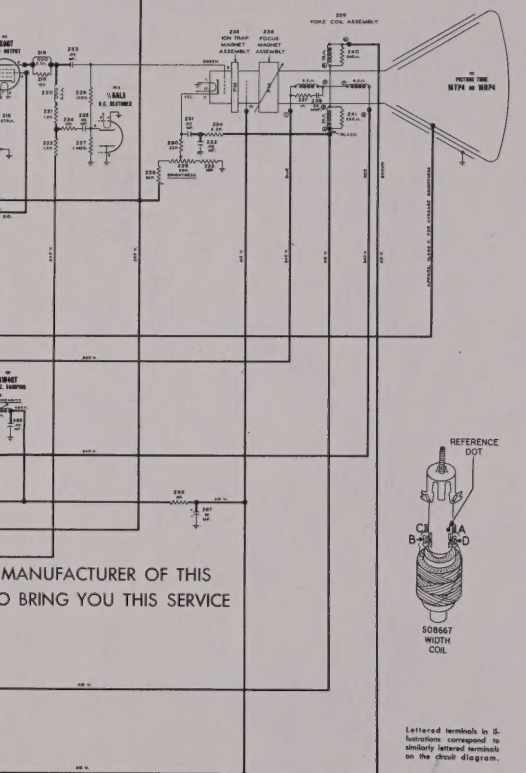
It should be understood that there is no performance advantage of a chassis using either a 508679 or a 508971 Horizontal Sweep Transformer—the sweep circuit and associated transformer in either chassis performs equally well.

PRODUCTION CHANGES

The following tabulation furnishes complete details on changes made in the production of these receivers. The receivers incorporating these changes are identified by coding stamped on rear surface of chassis. This coding consists of letter or letters following the word SERIES, as SERIES B, SERIES AC, etc. Receivers not having the word SERIES stamped on chassis are shown below. Chassis incorporate only that change indicated by letter designation i.e., chassis stamped "SERIES C" does not include changes "A" or "B".

The circuit shown on this page applies to "SERIES D" chassis.

LETTER INCLUDED IN DESIGNATION FOLLOWING THE WORD "SERIES"	CHANGE INCORPORATED IN CHASSIS
"A"	There is no performance advantage in a chassis containing this change—both versions are OK to stock. Mixing of certain tubes. 1. Tube V12 (Video Amp.) was changed from a type 6AU6 to a type 6AG5. 2. Tube V16 (type 6SL7-GT) was changed from a type 6SN7-GT. In order for this receiver to operate properly, V15 and V16 must be the same type tube.
"B"	There is no performance advantage in a chassis containing this change—both versions are OK to stock. Mixing of certain tubes. 1. Tube V1 (1st Sound I. F. Amp.) was changed from a type 6AU6 to a type 6AG5. 2. Connection point of resistor 79 (82 Ohms) was changed from pin 7 of tube V1 (1st Sound I.F. Amp.) to pin 2 of this tube. 3. Connection point of bias feed from pin 2 of transformer T4 (2nd Sound I.F. transformer) was changed from pin 7 of tube V1 (1st Sound I.F. Amp.) to pin 2 of this tube. 4. Tube V3 (2nd Sound I.F. Amp.-limiter) was changed from a type 6AU6 to a type 6BD6 (Video) was changed from pin 7 of tube V3 (2nd Sound I.F. Amp.-Limiter) to pin 2 of this tube. 5. Connection point of bias feed from pin 2 of transformer T5 (2nd Sound I.F. transformer) was changed from pin 7 of tube V3 (2nd Sound I.F. Amp.-Limiter) to pin 2 of this tube. In order for this receiver to operate properly, V3 and V4 must be the same type tubes.
"C"	There is no performance advantage in a chassis containing this change—both versions are OK to stock. Mixing of certain tubes. 1. Tube socket for V26 (Vertical Sweeping Output) was changed from a type 6U8 to a type 6SN7GT. 2. Tube V26 (Vertical Sweeping Output) was changed from a type 6U8 to a type 6SN7GT. 3. Resistor 338 (470 Ohms) was changed to 1000 Ohms (Vertical Sweeping Output) was changed to 1000 Ohms (Vertical Sweeping Output). 4. Resistor 339 (22 Meg.) was added in parallel with resistor 337 (68 Meg.) as shown in schematic. Connection shown.
"D"	This change was incorporated in the chassis to improve performance as follows: 1. Resistor 351 (1500 Ohms) was added in plate circuit of V19 (6BA6GT) Mod. Amp. Resistor 352 (1500 Ohms) was changed from a 1000 Ohm to a 2700 Ohm. 2. Resistor 338 in plate circuit of V19 (6BA6GT) Mod. Amp. was changed from a 2700 Ohm to a 3900 Ohm. 3. Part 345 (1 Amp. 250 Volt) was added between red lead of power transformer and chassis ground.



PRELIMINARY DATA
The data contained in this folder is published in advance of regular PHOTOFACT Coverage

SET 119 FOLDER 1A

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AIRCASTLE
MODEL 606-400WB

AIRCASTLE
MODEL 606-400WB

AIRCASTLE MODEL 606-400WB

TRADE NAME	Aircastle, Model 606-400WB
MANUFACTURER	Spiegel, Inc., 1061 W. 35th St., Chicago, Illinois
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output
POWER SUPPLY	1.5 Volts "A" Supply And 90 Volts "B" Supply In Pack Form
RATING	250 MA @ 1.5 Volts DC And 11MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1725 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open	Across voice coil.	A1, A2, A3, A4,	Adjust for maximum output
2.	250MMFD.	High side thru dummy to antenna lead. Low side to chassis.	1725KC	"	"	A5	"
3.	250MMFD.	"	1400KC	Tune for max. output	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRCASTLE PART No.	STANDARD REPLACEMENT		
V1	Converter	1A7	1A7	7Z	
V2	IF Amp.	1N5	1N5	5Y	
V3	Det.-AVC-AF	1H5	1H5	5Z	
V4	Power Output	3Q5	3Q5	7AQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRCASTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1	8	150	A18-273	PRS150/8		BR815		TVA-1406	RF Bypass *
C2	4.7		A83-355	SI5	TCZ-4.7	5W5V5	GP1K-5	MS-55	RF Coupling ¶
C3	.05	600	A16-152	P688-05	DF-503	PTE6S5		6TM-S5	AVC Filter
C4	50	500	A15-175	1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	Osc. Grid Cap
C5	.02	200	A16-150	P488-02	DF-203	PTE4S2		2TM-S2	Osc. Anode Bypass
C6	.05	600	A16-152	P688-05	D6-503	PTE6S5		6TM-S5	RF Bypass
C7	.02	200	A16-150	P488-02	DF-203	PTE4S2		2TM-S2	IF Grid Filter
C8	150	500	A15-176	1468-00015	D6-151	5W5T15	GP2K-150	1FM-315	Diode RF Filter †
C9	.01	200	A16-156	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling §
C10	150	500	A15-176	1468-00015	D6-151	5W5T15	GP2K-150	1FM-315	AF Amp. Plate †
C11	.01	200	A16-156	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C12	.003	1000	A16-155	P688-003	D6-302	PTE16D3	GP2M-003	6TM-D3	Output Plate Bypass

* Some Models Use 4MFD. In This Application.
† Some Models Use 250 MMF. In This Application.
§ Some Models Use .005 MFD. In This Application.
¶ Not Used In All Models.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	2Meg	½	*	Q13-139	AG-66-Z	B-76-S	Volume control
B	Shaft			Not req.	FS-3	Not req.	Attach to R1A per instructions.
C	Switch			76-2	SWB-2	Not req.	Attach to R1A per instructions.

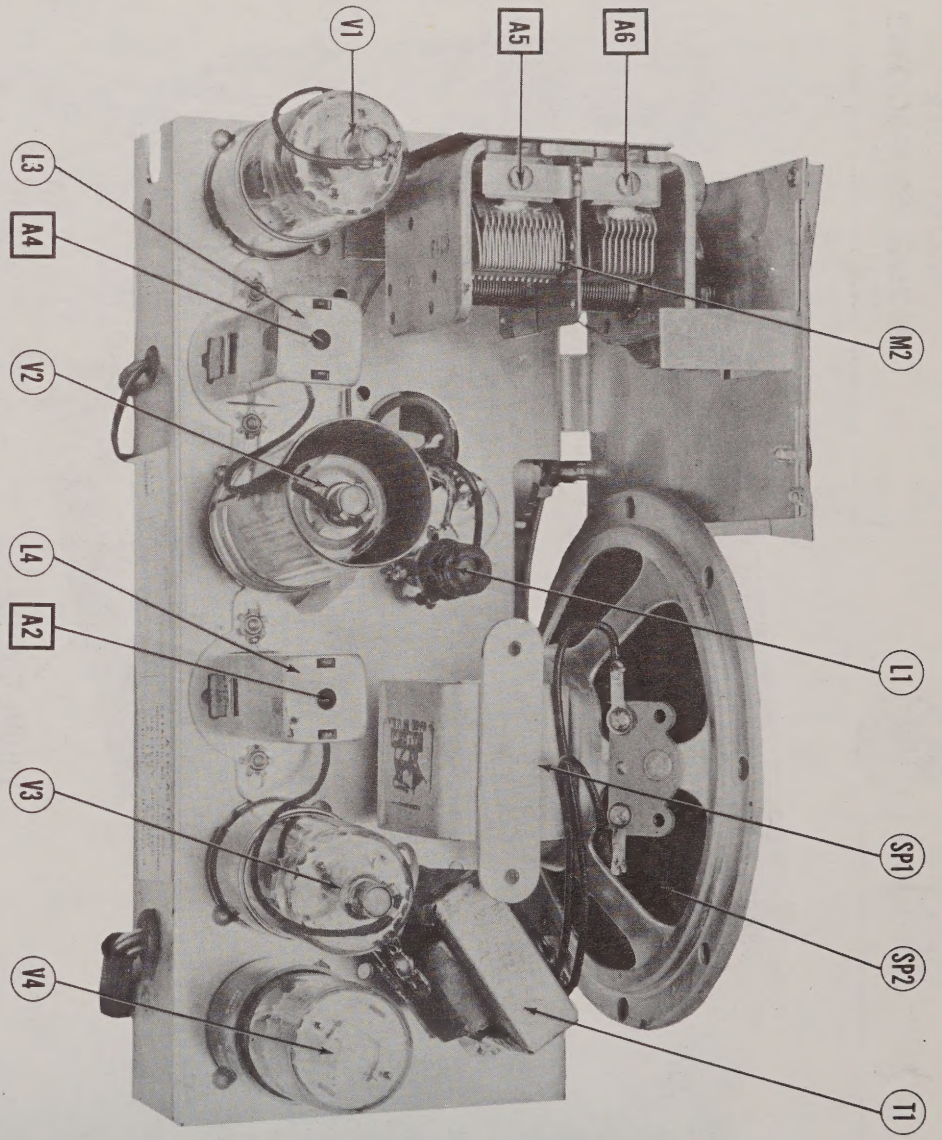
* Some Models Use 1Meg Control In This Application - Mfgr's. Part No. A24-170

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	
R2	220KΩ	½	A60-667		Osc. Grid
R3	47KΩ	1	A60-685		Osc. Anode
R4	2.2Meg	½	A60-684		IF Amp. Grid
R5	2.2Meg	½	A60-684	BTS-2.2Meg	AVC Network
R6	10Meg	½	A60-663	BTS-10Meg	AF Amp Grid
R7	470KΩ	½	A60-662	BTS-470K	AF Amp Plate
R8	1Meg	½	A60-668	BTS-1Meg	Output Grid - See Note
R9	390Ω	1	A60-665	BTA-390	Bias Network

Note Some Models Use Resistors In Parallel To Obtain Desired Resistance.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	8KΩ	3.2Ω	320Ω	.4Ω	B80-232	A-3329 ①	A-2927 ①	RO-11 ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.2Ω	B79-352	ST-105 Model P5-X	5A07	
	CONE DIA.	V. C. DIA.				
SP2	4 3/4	9/16				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.	
L1	Ant. Coil	3.7Ω	15Ω	A10-485	14-1071	
L2	Osc. Coil	2.7Ω	8.5Ω	A10-505	14-1074	
L3	1st IF	24Ω	24Ω	A10-506	16-6668	
L4	2nd IF	24Ω	24Ω	A10-506	16-6669	

BATTERIES

ITEM No.	VOLTAGE	AIRCASTLE PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	1.5V"A" 90V"B"	1491			758			17GD60	

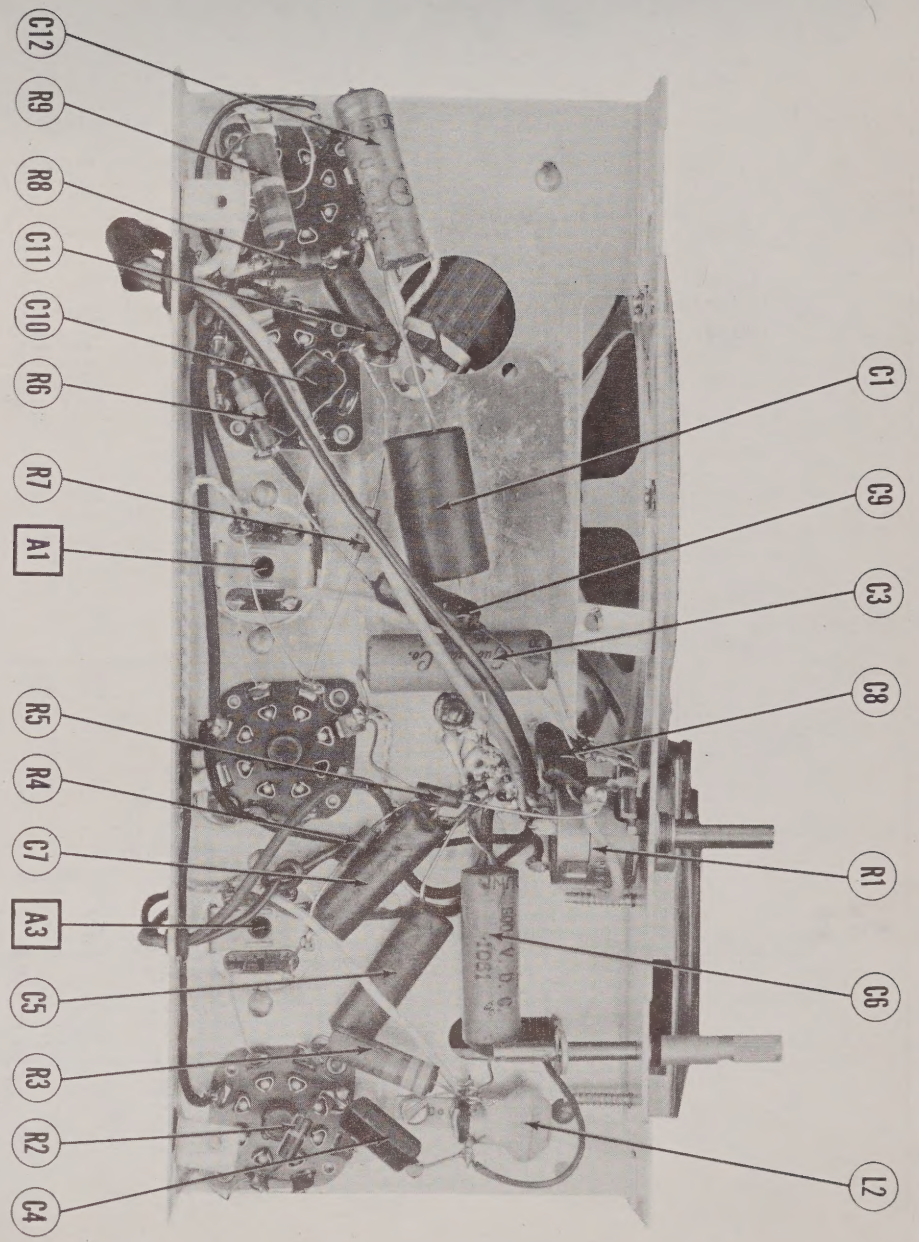
MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
M2	2 Gang Var. Cap	B19-188	(50-492MMF, 44-272MMF)
	Dial Scale	B67-515	
	Dial Pointer	58-31	
	Cabinet	D42-437	
	Knob	A52-245	

TUNING GANG FULLY CLOSED

DIAL CORD DRIVE

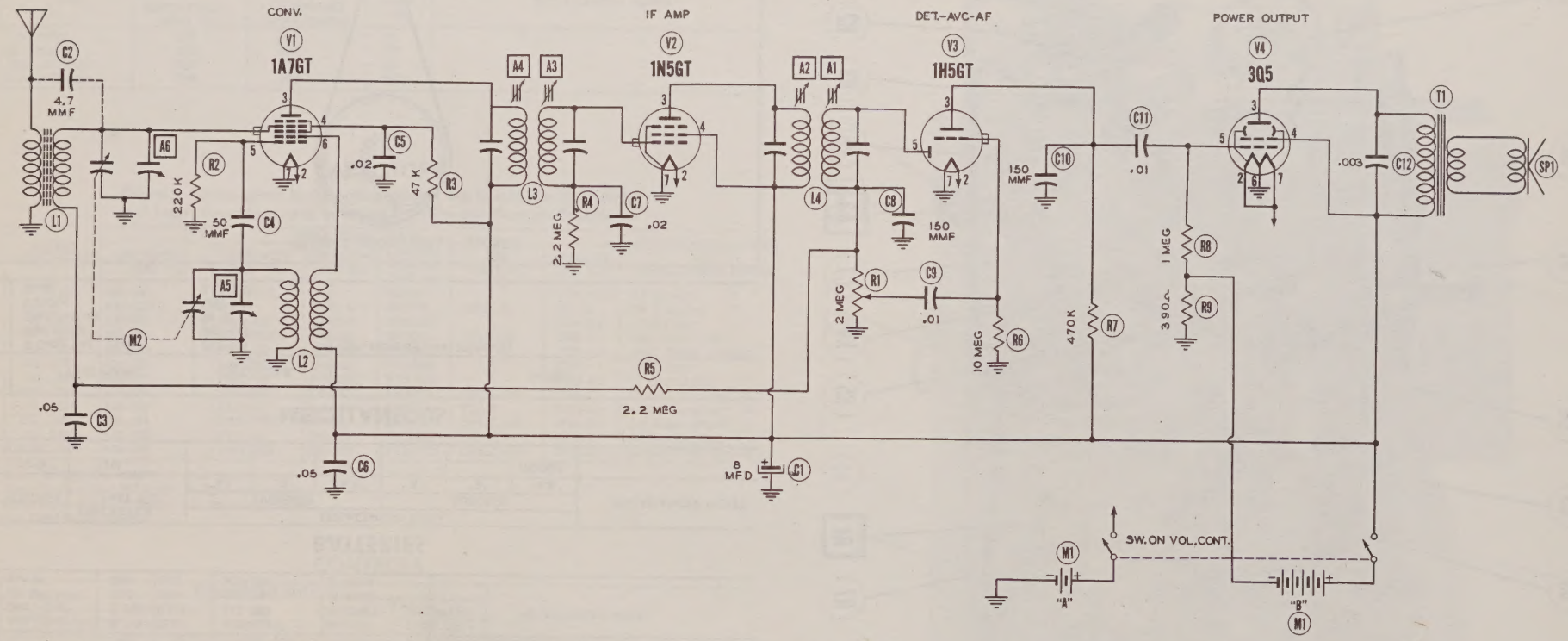
CHASSIS—BOTTOM VIEW



SET 119 FOLDER 2

AIRCASTLE MODEL 606-400WB

AIRCASTLE MODEL 606-400WB



IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	1A7GT	0V	1.5VDC	90VDC	55VDC	$-5.8VDC	90VDC	0V	0V	TOP CAP -.2VDC
V 2	1N5GT	0V	1.5VDC	90VDC	90VDC	-.2VDC	0V	0V	0V	TOP CAP 0V
V 3	1H5GT	0V	1.5VDC	50VDC	0V	-.5VDC	-.1VDC	0V	0V	TOP CAP -.1VDC
V 4	3Q5GT	0V	1.5VDC	85VDC	90VDC	-1.2VDC	-5VDC	1.5VDC	0V	

$ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	1A7GT	0Ω	*	†24Ω	†47KΩ	220KΩ	†2.7Ω	0Ω	0Ω	TOP CAP 4.2 Meg.
V 2	1N5GT	0Ω	*	†24Ω	†0Ω	4.2 Meg.	Inf.	0Ω	0Ω	TOP CAP 2.2 Meg.
V 3	1H5GT	0Ω	*	†500KΩ	Inf.	2 Meg.	10 Meg.	0Ω	0Ω	TOP CAP 10 Meg.
V 4	3Q5GT	0Ω	*	†320Ω	†0Ω	1 Meg.	390Ω	*	0Ω	

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
† MEASURED FROM PIN 4 OF V4

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

*TRADE MARK

AIRLINE MODEL

O5WG-3030A

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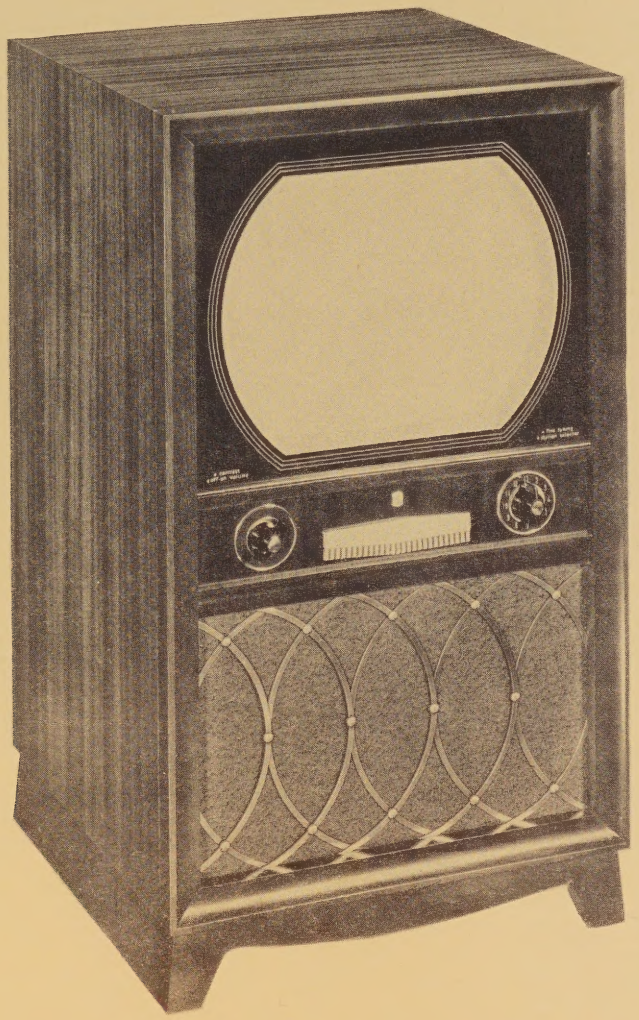

AIRLINE MODEL
O5WG-3030A

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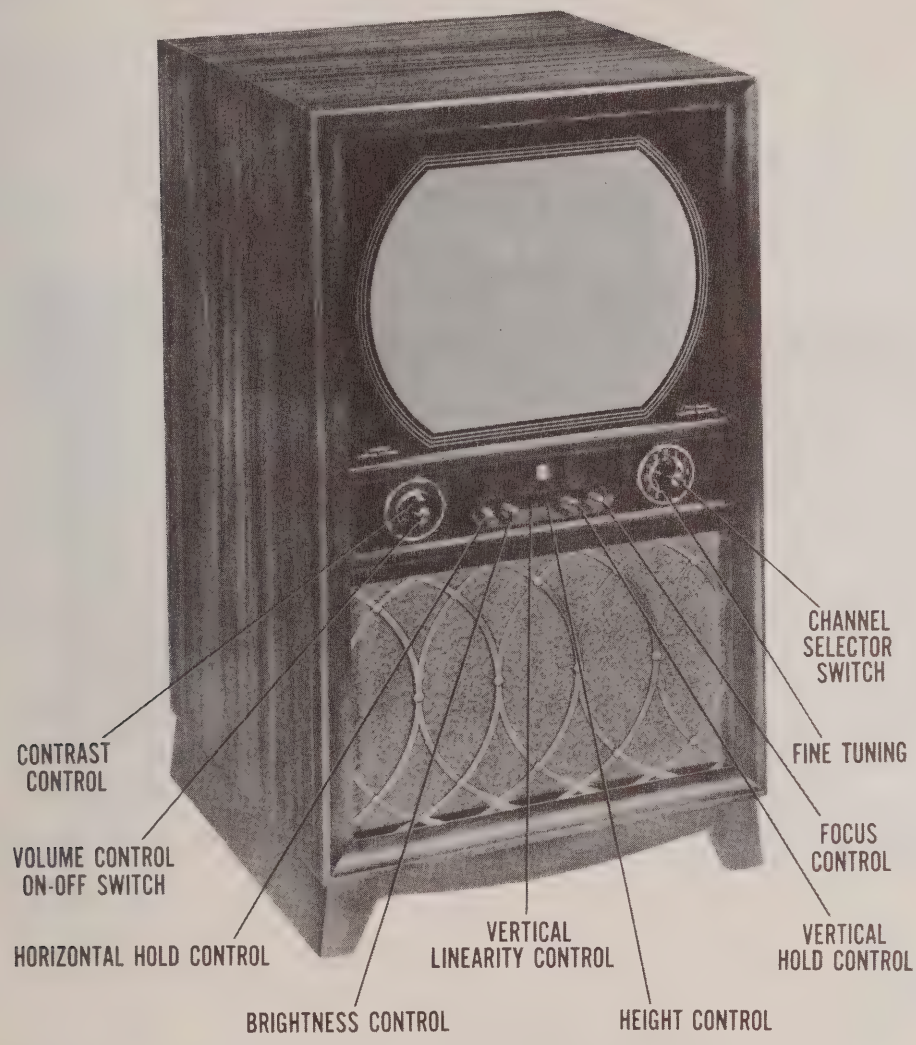
Date 1/51 Set No. 119—Folder No. 3

AIRLINE
MODEL 05WG-3030A



AIRLINE
MODEL 05WG-3030A

TRADE NAME	Airline, Model 05WG-3030A
SUPPLIER	Montgomery Ward and Co., 619 Chicago Ave., Chicago, Illinois
TYPE SET	Television Receiver
TUBES	Twenty-Five
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	2.2 Amp. at 117 Volts AC
TUNING RANGE—	Channels 2 thru 13

INDEX

Alignment Instructions 6, 7
Horiz. Sweep Circuit Adjustments 11
Parts List and Description 12, 13, 14
Photographs
Cabinet-Rear View 11
Capacitor and Alignment Identification 4, 9
Photographs (continued)
Chassis-Top View 3
RF Tuner 10
Resistor and Inductor Identification 15, 16
Schematic 2
Tube Placement Chart 5
Voltage and Resistance Measurements 8

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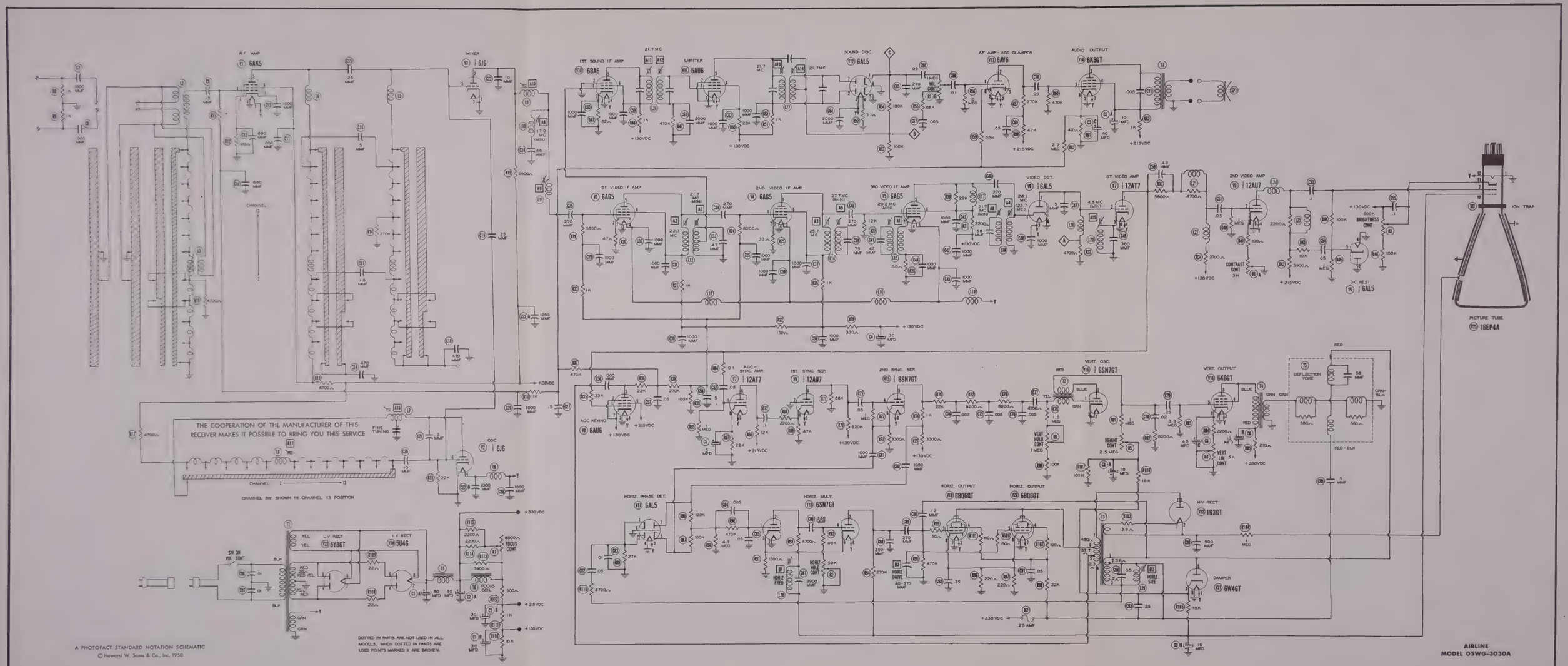

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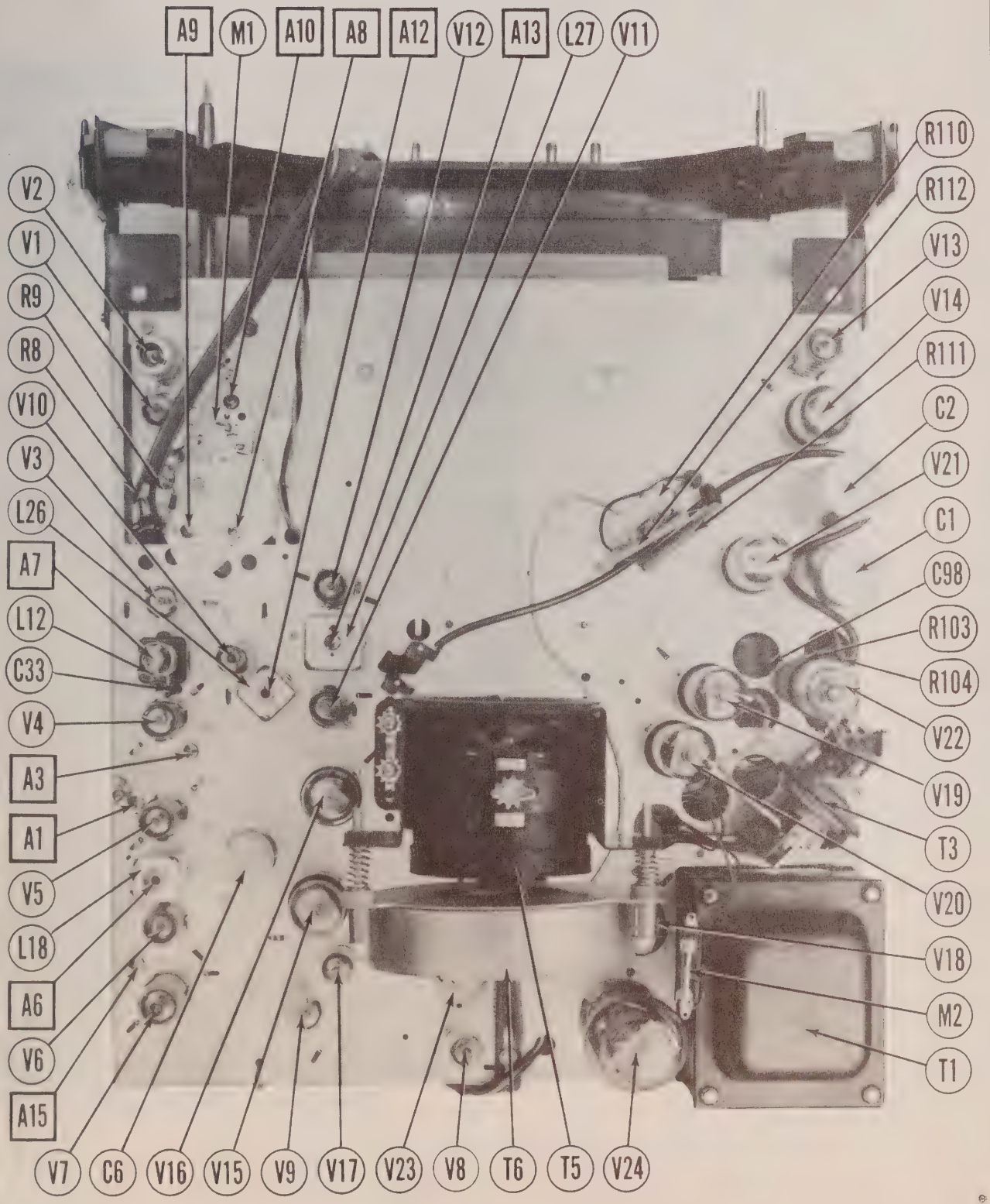
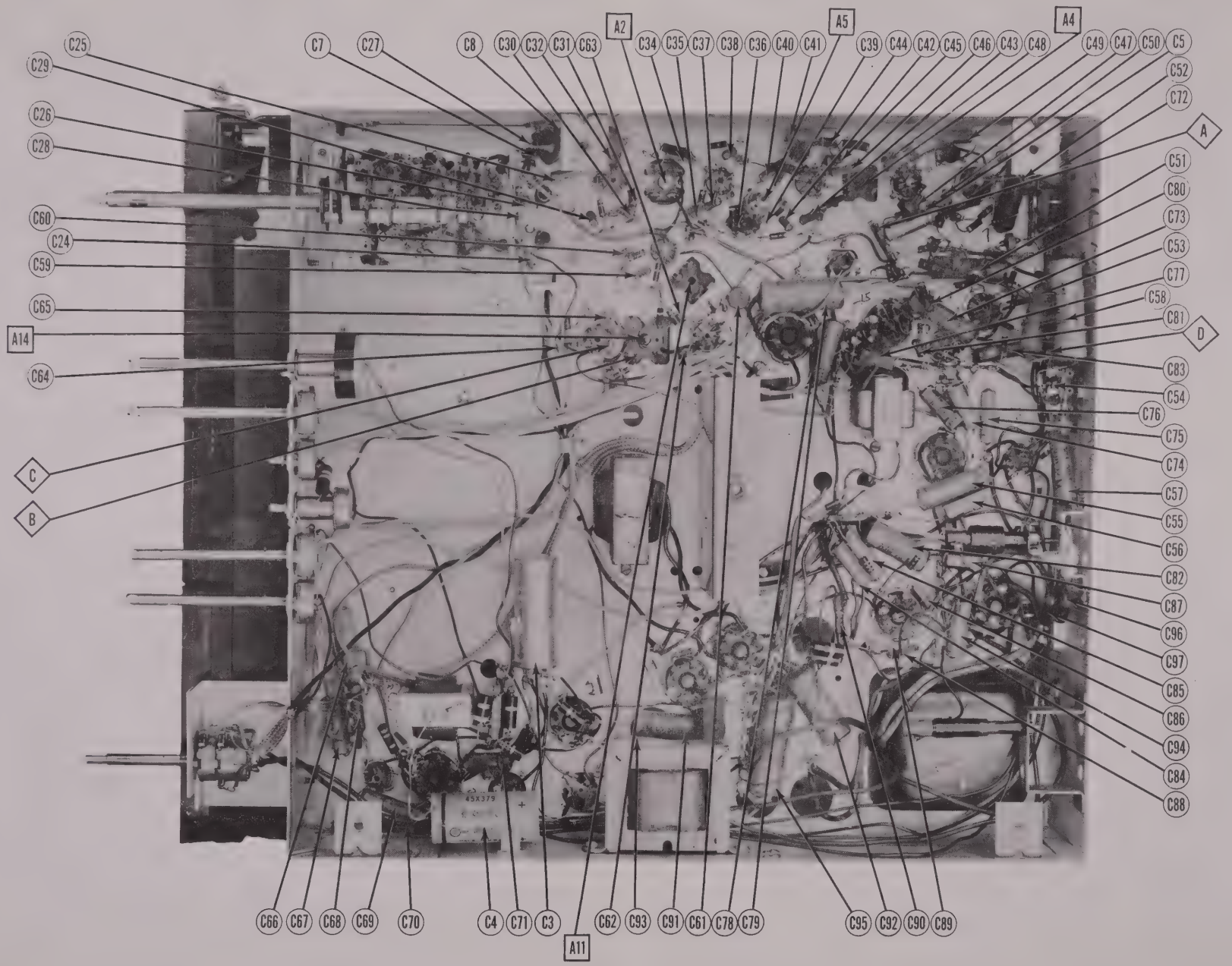
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

AIRLINE
MODEL 05WG-3030A

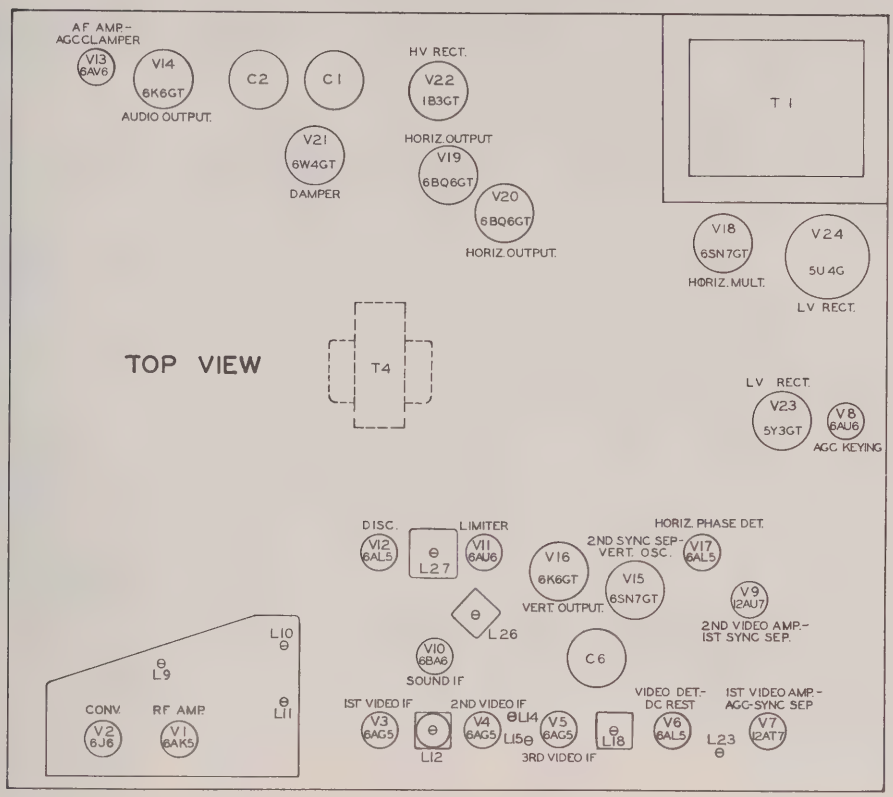
AIRLINE
MODEL 05WG-3030A

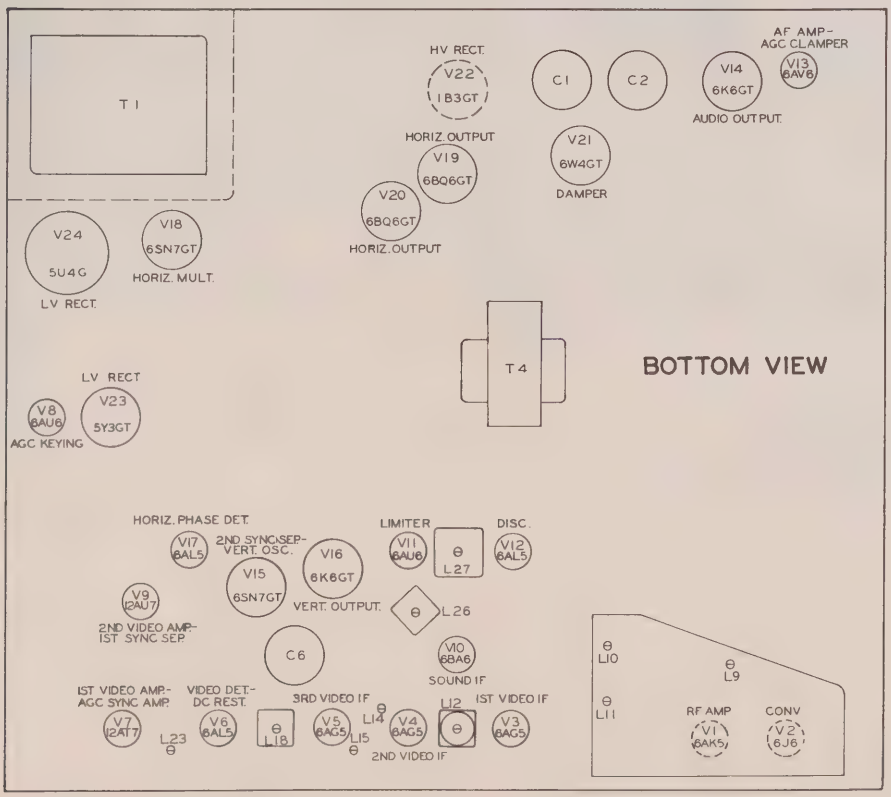


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To eliminate the high voltage shock hazard remove the horizontal multivibrator tube (V18) from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 with pin 1 removed to prevent erroneous indications.

This receiver employs one of two tuners, a switch type tuner or a turret type tuner. The frequency used when adjusting A4 when the switch type tuner is employed differs slightly from the frequency used with the turret type tuner. The frequency used with a switch type tuner will be designated by an "asterisk" (*) and the frequency used with a turret type tuner will be designated by a "dagger" (†). Determine which tuner is employed before attempting Video IF Alignment. Before attempting step 8 short out the AGC line.

In step 9 connect the negative terminal of a 3 volt battery to the junction of R23 and C35 and positive terminal to chassis. If turret type tuner is employed, omit step 7.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscillioscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	Not used	20.2MC (Unmod.)	Any	Use VTVM. DC Probe to Point Ⓐ. Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	Direct	"	"	22.7MC	"	"	A2	Adjust for maximum deflection.
3.	Direct	"	"	25.7MC	"	"	A3	"
4.	Direct	"	"	24.1MC * 23.7MC †	"	"	A4	"
5.	Direct	"	"	27.7MC	"	"	A5	Adjust for MINIMUM deflection.
6.	Direct	"	"	21.7MC	"	"	A6, A7	"
7.	Direct	"	"	17MC	"	"	A8	"
8.	Direct	"	24MC (10MC SWP)	21.7MC 26.2MC	"	Vert. Amp. thru detector probe as shown in figure 1 to pin 5 (plate) of 6AG5 (V3). Low side to chassis.	A9, A10	Adjust for response curve similar to figure 2 with markers as shown. A slight readjustment of A8 may be necessary for optimum results. The response for turret type tuner is shown by dotted line in figure 2.
9.	Direct	"	"	21.7MC 22.4MC 22.6MC 25.25MC 26.2MC	"	"		Check for response curve similar to figure 3. The 22.4MC and 26.2MC markers should be at 50% response. If necessary, slightly retouch A2, A3, and A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	Direct	High side to ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	21.7MC (Unmod.)	Any	DC Probe to Point Ⓑ. Common to chassis.	A11, A12, A13	Adjust for maximum deflection.
11.	Direct	"	"	"	DC Probe to Point Ⓒ. Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Direct	High side to ungrounded tube shield floating over dummy converter tube (V2). Low side to chassi chassis.	21.7MC (450KC SWP)	21.7MC	Any	Vert. Amp. thru 10KΩ to pin 1 (Grid) of 6AU6 (V11). Low side to chassis.	A11, A12	Adjust for maximum amplitude and symmetry as per figure 4.
11.	Direct	"	"	"	"	Vert. Amp. to Point Ⓒ. Low side to chassis.	A13, A14	Adjust A14 to place 21.7MC at center of diagonal line as per figure 5. Adjust A13 for maximum amplitude and straightness of diagonal line.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12.	.001MFD	High side to pin 2 (Grid) of 12AT7 (V7). Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe thru detector probe as per figure 1 to Point Ⓓ. Common to chassis.	A15	Adjust for MINIMUM deflection.

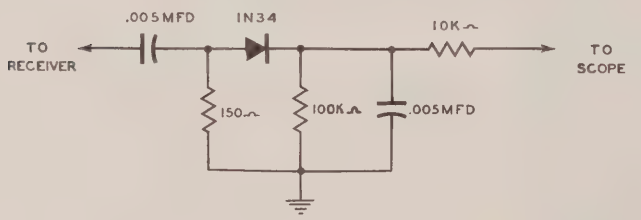


FIG.1

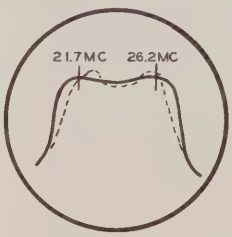


FIG.2

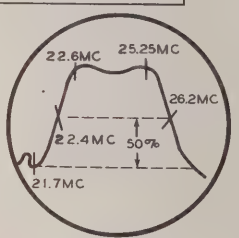


FIG.3

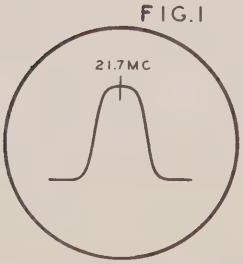


FIG.4

FIG.5

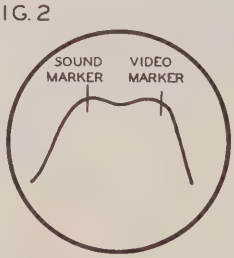


FIG.6

OSCILLATOR ALIGNMENT (SWITCH TYPE TUNER)

Remove the dummy converter tube and replace original 6J6 in its socket.
Connect a 3 volt battery as in step 9 of Video IF Alignment.
The RF portion of this tuner is pre-set at the factory and is very stable and should not require adjustment in the field.
Set the fine tuning control to the mid-position of its range.
The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
13.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	215.75MC (Unmod.)	13	DC Probe to Point Ⓒ. Common to chassis.	A16	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
14.	"	"	209.75MC	12	"		Check all high band channels to see if a zero reading can be obtained well within the range of the fine tuning control. If not, a compromise adjustment of A16 will be required.
			203.75MC	11			
			197.75MC	10			
			191.75MC	9			
			185.75MC	8			
			179.75MC				
15.	"	"	87.75MC	6	"	A17	Adjust for zero reading. A positive and negative reading wil be obtained on either side of the correct setting.
16.	"	"	81.75MC	5	"		Check all low band channels to see if a zero reading can be obtained well within the range of the fine tuning control. If not a compromise adjustment of A17 will be required.
			71.75MC	4			
			65.75MC	3			
			59.75MC	2			

RF AND MIXER ALIGNMENT (TURRET TYPE TUNER)

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to Point Ⓔ. Low side to chassis.	A18, A19, A20	Adju ' for flat top response curve similar to figure 6 with markers as shown.
18.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check the position of markers on all channels. If maximum reception is desired for one specific channel, adjust A18, A19 and A20 on that channel and then check all other channels to make certain that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

OSCILLATOR ALIGNMENT (TURRET TYPE TUNER)

Remove the dummy converter tube and replace the original 6J6 in its socket.
Connect a 3 volt battery as in step 9 of Video IF Alignment.
Complete oscillator alignment may not be necessary. This is determined by checking to see that a zero reading is obtained for each channel when the fine tuning control is turned through the mid-point of its range. (connect signal generator and VTVM as in steps 19 and 20. Sound carrier frequencies are listed in step 20). If the majority of the channels seem to need oscillator alignment this sometimes may be done in one operation -step 19, by adjusting A21. It should be noted that this is an all channel adjustment and should not be adjusted for any individual channels. If step 19 fails to align the oscillator circuit sufficiently, it will be necessary to adjust the individual channel oscillator slugs. These are accessible one channel at a time through the small hole to the right of the channel switch shaft as the channel switch is rotated to each channel.
The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
19.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	215.75MC	13	DC Probe to Point Ⓒ. Common to chassis.	A21	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Rotate channel switch and adjust oscillator slugs for each individual channel as in step 20. Then repeat step 19.
20.	"	"	215.75MC	13	"	A22	
			209.75MC	12		A23	
			203.75MC	11		A24	
			197.75MC	10		A25	
			191.75MC	9		A26	
			185.75MC	8		A27	
			179.75MC	7		A28	
			87.75MC	6		A29	
			81.75MC	5		A30	
			71.75MC	4		A31	
			65.75MC	3		A32	
			59.75MC	2		A33	

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AK5	-.4VDC	.9VDC	6.3VAC	0V.	90VDC	90VDC	.9VDC		
V 2	6J6	75VDC	95VDC	0V.	6.3VAC	-1.4VDC	§-3.7VDC	0V.		
V 3	6AG5	-1.2VDC	.3VDC	0V.	6.3VAC	105VDC	110VDC	.3VDC		
V 4	6AG5	-1.2VDC	.3VDC	6.3VAC	0V.	105VDC	105VDC	.3VDC		
V 5	6AG5	-.3VDC	1.3VDC	6.3VAC	0V.	110VDC	110VDC	1.3VDC		
V 6	6AL5	0V.	0V.	6.3VAC	0V.	1.4VDC	0V.	-.9VDC		
V 7	12AT7	105VDC	-.9VDC	0V.	6.3VAC	6.3VAC	210VDC	0V.	6.4VAC	0V.
V 8	6AU6	125VDC	130VDC	0V.	6.3VAC	-.5VDC	215VDC	130VDC		
V 9	12AU7	200VDC	0V.	9.6VDC	6.3VAC	6.3VAC	7.7VDC	0V.	1.2VDC	0V.
V 10	6BA6	0V.	0V.	0V.	6.3VAC	110VDC	110VDC	1.5VDC		
V 11	6AU6	-.7VDC	0V.	6.3VAC	0V.	125VDC	85VDC	0V.		
V 12	6AL5	.2VDC	-.7VDC	6.3VAC	1VAC	0V.	0V.	-.7VDC		
V 13	6AV6	-1.6VDC	0V.	6.3VAC	0V.	0V.	-1.2VDC	90VDC		
V 14	6K6GT	-.4VDC	0V.	180VDC	190VDC	0V.	195VDC	6.3VAC	13VDC	
V 15	6SN7GT	-18VDC -16VDC	190VDC 95VDC	0V.	1.2VDC	100VDC	23VDC	0V.	6.3VAC	
V 16	6K6GT	0V. 37VDC	6.3VAC	320VDC	320VDC	0V.	0V.	0V.	35VDC 52VDC	
V 17	6AL5	0V.	0V.	6.3VAC	0V.	3VDC	0V.	-3VDC		
V 18	6SN7GT	.3VDC	330VDC	14VDC	-7.2VDC -5.4VDC	120VDC	14VDC	0V.	6.3VAC	
V 19	6BQ6GT	0V.	6.3VAC	0V.	100VDC	.7VDC	.7VDC	0V.	15VDC	TOP CAP *
V 20	6BQ6GT	460VDC	0V.	330VDC	100VDC	.7VDC	0V.	6.3VAC	15VDC	TOP CAP *
V 21	6W4GT	460VDC	0V.	460VDC	0V.	330VDC	0V.	6.3VAC	0V.	
V 22	1B3GT		* DO NOT MEASURE.							
V 23	5Y3GT	0V.	340VDC	0V.	335VAC	0V.	335VAC	0V.	340VDC	
V 24	5U4G	0V.	340VDC	0V.	335VAC	335VAC	335VAC	335VAC	340VDC	
V 25	16EP4A	0V.	.6VDC	PIN 10 370VDC	PIN 11 19VDC 130VDC	PIN 12 6.3VAC				

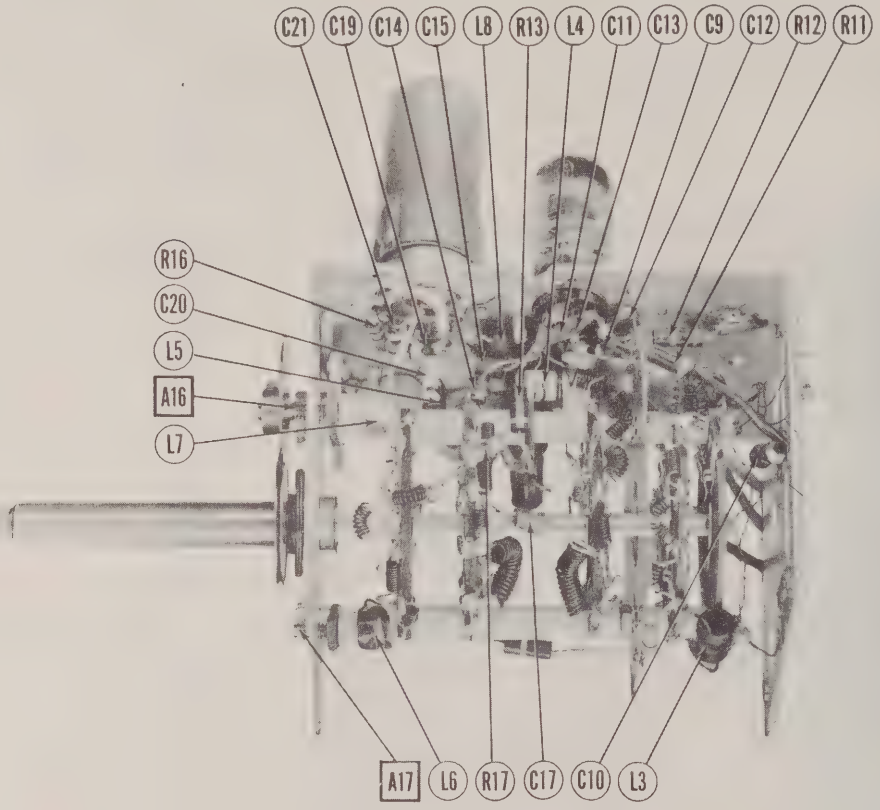
FOCUS CONTROL SET FULLY COUNTERCLOCKWISE.
§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.

RESISTANCE READINGS

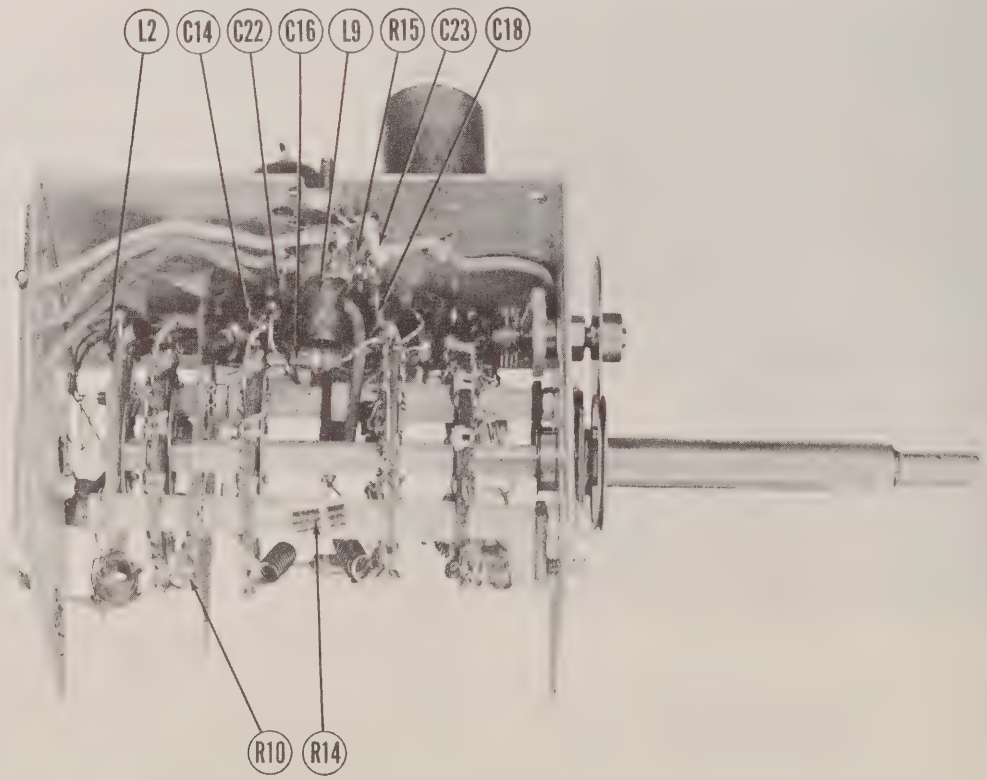
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AK5	650KΩ	100Ω	.1Ω	0Ω	†7KΩ	†7KΩ	100Ω		
V 2	6J6	†7KΩ	†8KΩ	0Ω	.2Ω	270KΩ	22KΩ	0Ω		
V 3	6AG5	105KΩ	47Ω	0Ω	.1Ω	†3.6KΩ	†3.6KΩ	47Ω		
V 4	6AG5	105KΩ	33Ω	.1Ω	0Ω	†3.5KΩ	†3.5KΩ	33Ω		
V 5	6AG5	12KΩ	150Ω	.1Ω	0Ω	†4.3KΩ	†4.3KΩ	150Ω		
V 6	6AL5	.3Ω	0Ω	.1Ω	0Ω	1 Meg.	0Ω	4.7KΩ		
V 7	12AT7	†10KΩ	4.7KΩ	.3Ω	.1Ω	.1Ω	†13KΩ	1 Meg.	22KΩ	0Ω
V 8	6AU6	†40KΩ	†2.1KΩ	0Ω	.1Ω	390KΩ	†1.1KΩ	†2.1KΩ		
V 9	12AU7	†5KΩ	1 Meg.	3.1KΩ	.1Ω	.1Ω	†80KΩ	0Ω	47KΩ	0Ω
V 10	6BA6	0Ω	0Ω	0Ω	.1Ω	†3.2KΩ	†3.2KΩ	82Ω		
V 11	6AU6	470KΩ	0Ω	.1Ω	0Ω	†3.2KΩ	†25KΩ	0Ω		
V 12	6AL5	200KΩ	100KΩ	.1Ω	2.2Ω	0Ω	0Ω	100KΩ		
V 13	6AV6	10 Meg.	0Ω	.1Ω	0Ω	Inf.	650KΩ	†320KΩ		
V 14	6K6GT	600KΩ	0Ω	†2.5KΩ	†2.1KΩ	470KΩ	†30KΩ	.1Ω	470Ω	
V 15	6SN7GT	1.6 Meg. 2.6 Meg.	▲1 Meg. ▲3.5 Meg.	0Ω	1 Meg.	†6.4KΩ	3.3KΩ	0Ω	.1Ω	
V 16	6K6GT	0Ω 5KΩ	.1Ω	†1.2KΩ	†1.2KΩ	3.3 Meg.	Inf.	0Ω	7.2KΩ 2.2KΩ	
V 17	6AL5	27KΩ	27KΩ	.1Ω	0Ω	4.8 Meg.	Inf.	4.8 Meg.		
V 18	6SN7GT	5.2 Meg.	▲15KΩ	1.5KΩ	100KΩ 150KΩ	▲280KΩ	1.5KΩ	0Ω	.1Ω	
V 19	6BQ6GT	Inf.	.1Ω	Inf.	†22KΩ	470KΩ	470KΩ	0Ω	110Ω	TOP CAP ▲30Ω
V 20	6BQ6GT	▲0Ω	0Ω	†320Ω	†22KΩ	470KΩ	11Ω	.1Ω	110Ω	TOP CAP ▲30Ω
V 21	6W4GT	▲0Ω	Inf.	118KΩ	Inf.	†50Ω	Inf.	.1Ω	0Ω	
V 22	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ▲510Ω
V 23	5Y3GT	Inf.	12KΩ	Inf.	20Ω	Inf.	20Ω	Inf.	12KΩ	
V 24	5U4G	Inf.	12KΩ	Inf.	42Ω	20Ω	42Ω	20Ω	12KΩ	
V 25	16EP4A	0Ω	1.1 Meg.	PIN 10 ▲10KΩ	PIN 11 100KΩ 11KΩ	PIN 12 .1Ω				

FOCUS CONTROL SET FULLY COUNTERCLOCKWISE.
† MEASURED FROM PIN 2 OF V24.
▲ MEASURED FROM PIN 3 OF V21.

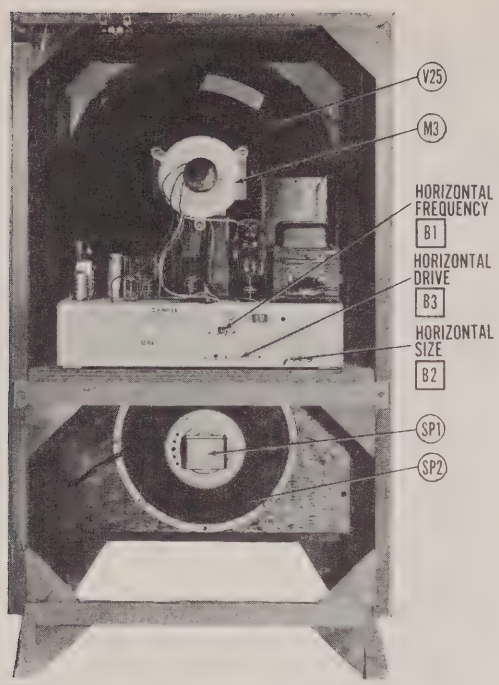
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



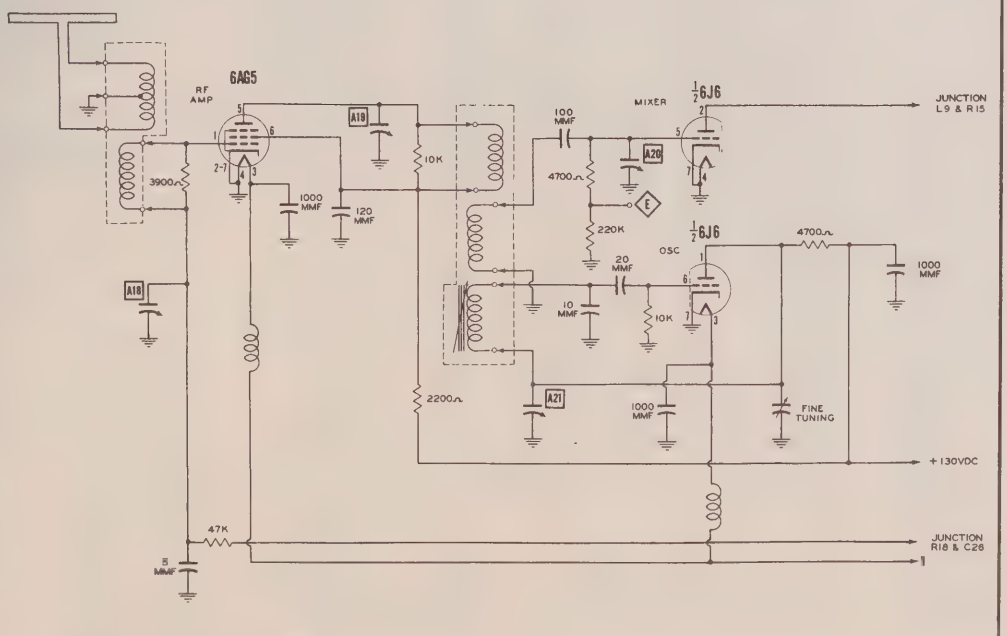
CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Turn the horizontal size slug (B2) fully clockwise and adjust the horizontal drive trimmer (B3) for best linearity from left to right. Readjust B2 until picture fills the mask horizontally. If the B3 is opened counter-clockwise too far, a white line may appear at the left center portion of the picture.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALTERNATE TUNER

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T7	7100Ω	4.2Ω	450Ω	.5Ω	51X146	A-3878	A-2931	RO-13	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	4.2Ω	12A490	ST-101 MOD. P12-T	12A4A	
	CONE DIA.	V. C. DIA.				
SP2	11 1/2"	1"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.270ADC	51Ω	2 Henries	52X88	C-2326	C-2991	TR-3300①	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
L2	Ant. Coil 0Ω	0Ω	0Ω	*		
L3	Ant. Coil	0Ω	0Ω	*		
L4	RF Coil	0Ω		*		
L5	Mixer Grid	0Ω		*		
L6	Osc. Coil	0Ω		*		
L7	Osc. Coil	0Ω		*		
L8	Fil. Choke	.1Ω		*		
L9	1st Video IF	.3Ω		*		
L10	Video Trap	.2Ω		9A2059		
L11	1st Video IF Coupling	.3Ω		9A2072		
L12	2nd Video IF -Sound Take Off	.2Ω	0Ω	9A2076		
L13	Fil. Choke	0Ω		9A2033		
L14	3rd Video IF	.2Ω	0Ω	9A2055		With adj. channel sound trap
L15	Adj. Channel Video Trap	.2Ω	.2Ω	9A2073		
L16	Fil. Choke	0Ω		9A2033		
L17	RF Choke	3.8Ω		9A1979		
L18	4th Video IF	.3Ω		9A2071		With trap
L19	Fil. Choke	0Ω		9A2033		
L20	Peaking	10Ω		9A2090	19-1923	390 microhenries, gren dot
L21	Peaking	5Ω		9A2086	19-1920 †	95 microhenries, yellow dot wound on 4.7KΩ resistor.
L22	Peaking	7.2Ω		9A2088	19-1922	196 microhenries, blue dot
L23	4.5MC Trap	.3Ω		9A2074		
L24	Peaking	5.8Ω		9A2087	19-1921	125 microhenries, white dot
L25	Peaking	7Ω		9A2089	19-1921 #	183 microhenries, red dot, wound on 2.2KΩ resistor
L26	Sound IF	.2Ω	.1Ω	9A1986		
L27	Disc. Trans.	.1Ω	.1Ω	9A2049		
L28	Horiz. Osc.	50Ω		9A2096		
L29	Horiz. Size	.2Ω		9A2075		

* Part of tuner., Part Number 25A1074
† Parallel with 4.7KΩ resistor.
# Parallel with 2.2KΩ resistor.

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M1A	RF Tuner	25A1074	Switch Type
B	RF Tuner	25A1070	Turret Type
M2	Fuse	16X145	.25Amp. - 250V.
M3	Ion Trap	2A401	
B3	Trimmer	17A261	Horiz. Drive (40 - 370 MMF)
	Safety Glass	17X116	
	Escutcheon	4X1065	Channel Selector
	Escutcheon	4X1029	Volume and Contrast
	Knob	10A741	Channel Selector
	Knob	10A742	Fine Tuning
	Knob	10A752	Contrast
	Knob	10A753	Volume

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AK5	6AK5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF	6AG5	6AG5	7BD	
V4	2nd Video IF	6AG5	6AG5	7BD	
V5	3rd Video IF	6AG5	6AG5	7BD	
V6	Video Det. -DC Rest.	6AL5	6AL5	6BT	
V7	1st Video Amp. - AGC-Sync. Amp.	12AT7	12AT7	9A	
V8	AGC Keying	6AU6	6AU6	7BK	
V9	2nd Video Amp. - 1st Sync. Sep.	12AU7	12AU7	9A	
V10	Sound IF Amp.	6BA6	6BA6	7BK	
V11	Limiter	6AU6	6AU6	7BK	
V12	Disc.	6AL5	6AL5	6BT	
V13	AF Amp. -AGC Clamper	6AV6	6AV6	7BT	
V14	Audio Output	6K6GT	6K6GT	7S	
V15	2nd Sync. Sep. - Vert. Osc.	6SN7GT	6SN7GT	8BD	
V16	Vert. Output	6K6GT	6K6GT	7S	
V17	Hor. Phase Det.	6AL5	6AL5	6BT	
V18	Hor. Mult.	6SN7GT	6SN7GT	8BD	
V19	Hor. Output	6BQ6GT	6BQ6GT	6AM	
V20	Hor. Output	6BQ6GT	6BQ6GT	6AM	
V21	Damper	RW-81T	6W4GT	4CG	
V22	HV Rect.	1B3GT	1B3GT	3C	
V23	LV Rect.	5Y3GT	5Y3GT	5T	
V24	LV Rect.	5U4G	5U4G	5T	
V25	Picture Tube	16EP4A	16EP4A	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	450	45X376	AF166J		UPT44445		TVL-2777	▲ Filter
B	30	450							▲ Filter
C2A	80	450	45X376	AF166J		UPT44445		TVL-2777	▲ Filter
B	30	450							▲ Filter
C3A	10	450	45X375	AF225B		UPT1145V4		TVL-3749	■ Output Decoup.
B	10	450							▲ Decoupling
C	40	50							Vert. Cathode
C4	30	450	45X379	PRS450/30		BR3045A		TVA-1711	Filter
C5	5	25	45X378	PRS150/4		BBR5-25		TVA-1203	Sync. Amp. Cath.
C6A	10	450	45X375	AF225B		UPT1145V4		TVL-3749	■ Vert. Osc. Dec.
B	10	450							▲ Vert. Output Dec.
C	40	50							Vert. Output Cath.
C7	1000		47X519	SI1000	D6-102		GP2L-001	19C1	Ant. Coupling
C8	1000		47X519	SI1000	D6-102		GP2L-001	19C1	Ant. Coupling
C9	15			SI15	D6-150		GP1K-15	19C22	RF Coupling
C10	680			SI680	D6-681		GP2K-680	19C17	AGC Filter
C11	1000			BPD-001	DD-102		811-001	19C1	RF Decoupling
C12	680			SI680	D6-681		GP2K-680	19C17	RF Cathode
C13	1000			BPD-001	DD-102		811-001	19C1	RF Suppressor
C14	470			SI470	D6-471		GP2K-470	19C15	RF Plate Dec.
C15	.25								RF Coupling
C16	.5				TCZ-.5				RF Coupling
C17	1.8								RF Coupling
C18	470			SI470	D6-471		GP2K-470	19C15	Mixer Grid Filter
C19	.25								Osc. Coupling
C20	10			SI10NPO	TCZ-10		NPOK-10	19C3	Osc. Grid Cap.
C21	3			SI3NPO	TCZ-3.3		NPOK-3		Osc. Feedback
C22A	1000			BPD-2 x 001	DD-2-102		882-2 x 0015	29C7	RF Bypass
B	1000								Conv. Fil. Bypass
C23	10			SI10NPO	TCZ-10		NPOK-10	19C3	Fixed Trimmer
C24	68		47X501		TCN-68		N750L-68	29C15	Fixed Trimmer
C25	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C26	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	AGC Filter
C27	.5	200	B65604	P288-5		GT2P5		2TM-P5	AGC Filter
C28	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	Filament Bypass
C29	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	AGC Filter
C30	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	RF Bypass
C31	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	1st V. IF Dec.
C32	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	1st V. IF Fil.
C33	47			SI47NPO	TCZ-47		NPOM-47	29C14	Fixed Trimmer
C34	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C35	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	AGC Filter
C36	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	RF Bypass
C37	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	2nd V. IF Dec.
C38	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	2nd V. IF Fil.
C39	75			SI75NPO	TCZ-75		NPOM-75		Fixed Trimmer
C40	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C41	47	500	47X561	1469-00005	TCZ-47	5R5Q5	NPOM-50	MS-45	Fixed Trimmer
C42	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	RF Bypass
C43	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	3rd V. IF Dec.
C44	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	3rd V. IF Cath.
C45	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	3rd V. IF Fil.
C46	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	IF Coupling
C47	5		47X562	SI5	TCZ-4.7	5W5V5	GP1K-5	MS-55	V. Diode Filter
C48	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	V. Det.-DC Res. Fil.
C49	360	500	47X568	1469-00035			GP2K-360	1FM-335	Fixed Trimmer
C50	43		47X563		TCZ-43		NPOM-43		Peaking
C51	.05	400	D67503	P488-05	DF-503	PTE48S		4TM-S5	Video Coupling
C52	.05	400	D67503	P488-05	DF-503	PTE48S		4TM-S5	Video Coupling
C53	.1	400	D65104	P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C54	.05	400	D67503	P488-05	DF-503	PTE48S		4TM-S5	Video Coupling
C55	.1	200	B65104	P288-1	DF-104	PTE4P1		2TM-P1	Pic. Tube Cath.
C56	1000	1500	47X569	1464-HV-001					Hor. Sweep Coupling
C57	.05	350	D67503	P488-05	DF-503	PTE48S		4TM-S5	AGC Filter
C58	.5	200	B65504	P288-5		GT2P5		2TM-P5	AGC Filter
C59	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	S. IF Decoupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C60	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	S. IF Cath.
C61	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	Limiter Grid Filter
C62	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	Limiter Screen
C63	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	Limiter Plate Dec.
C64	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	Discr. Fil.
C65	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	RF Bypass
C66	.05	200	D67503	P288-05	DF-503	PTE48S		2TM-S5	Audio Coupling
C67	.005	600	B65502	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Tone Comp.
C68	.01	200	B65103	P488-01	D6-103	PTE48I	811-01	4TM-S1	Audio Coupling
C69	.05	400	D67503	P488-05	DF-503	PTE48S		4TM-S5	AF Amp. Plate Dec.
C70	.05	400	D67503	P488-05	DF-503	PTE48S		4TM-S5	Audio Coupling
C71	.005	600	F65502	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate Byp.
C72	.1	400	F65104	P488-1	DF-104	PTE4P1		4TM-P1	Sync. Coupling
C73	.05	400	D67503	P488-05	DF-503	PTE48S		4TM-S5	Sync. Coupling
C74	.002	600	B65202	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Integrator Net.
C75	.005	600	D65502	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Integrator Net.
C76	.005	600	B65502	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Integrator Net.
C77	4700	500	47X543	1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	Vert. Sync. Coupling
C78	.02	800	F65203	P688-02		PTE68Z		6TM-S2	Vert. Discharge
C79	.25	400	D65254	P488-25		GT4P25		4TM-P25	Vert. Sweep Coupling
C80	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	Hor. Sync. Coupling
C81	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	29C21	Hor. Sync. Coupling
C82	.05	600	F67503	P688-05	DF-503	PTE68S		6TM-S5	Hor. Feedback
C83	.01	200	B65103	P488-01	D6-103	PTE48I	811-01	4TM-S1	Voltage Divider
C84	.005	600	F65502	P688-005	D6-502	PTE6D5	811-005	6TM-D5	AFC Filter
C85	.05	200	B65503	P288-05	DF-503	PTE48S		2TM-S5	AFC Filter
C86	330	500	47X570	1468-00035	D6-331	5W5T3	GP2K-330	1FM-335	Hor. Feedback
C87	3900	500	47X572	1464-004		1DR5D4		MS-24	Fixed Trimmer
C88	390	500	47X571	1468-004	D6-391	5W5T4	GP2K-390	1FM-34	Hor. Discharge
C89	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	Hor. Sweep Coupling
C90	12	2500	47X574						Hor. Feedback
C91	.05	600	F67503	P688-05	DF-503	PTE68S		6TM-S5	Hor. Output Screen
C92	.35	200	B65354	P288-33		GT2P5		2TM-P47	Hor. Output Cath.
C93	.25	200	B65254	P488-25		GT2P25		2TM-P25	Damper Filter
C94	.05	200	D67503	P288-05	DF-503	PTE48S		2TM-S5	Fixed Trimmer
C95	.5	200	B65504	P288-5		GT2P5		2TM-P5	Hor. Sweep Coupling
C96	.01	400	47X410	P488-01	D6-103	PTE48I	811-01	4TM-S1	Line Filter
C97	.01	400	47X410	P488-01	D6-103	PTE48I	811-01	4TM-S1	Line Filter
C98	500	20000	47X560	HV20C	TV3-502				HV Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	3000Ω	½		Concentrikit			
B	1 Meg.	½		Bl1-112 *			Contrast control-front
C	Shaft End		78X4	Bl3-137X *		SBBT-503-S	Volume control-tapped at 200KΩ-rear
D	Switch			E-202 *			Attach per instr. in "Concentrikit".
				76-1 *			Attach per instr. in "Concentrikit".
R2A	50KΩ	½	40X299	Q11-123, C-3†	AG-44-S	B-31	Horiz. hold control
B	Shaft		Not Req.	Not Req.	KSS-5	AK-16 ∮	Attach to R2A per instructions
R3A	500KΩ	½	40X297	Q11-133, C-3†	AG-58-S	B-59	Brightness control
B	Shaft		Not Req.	Not Req.	KSS-5	AK-16 ∮	Attach to R3A per instructions
R4A	5000Ω	½	40X294	Q11-114			Vert. linearity control
B	Sleeve						
	Bushing		Not Req.	S-3			Attach to R4A per instructions
R5A	2.5 Meg.	½	40X293	Q11-239	AG-84-S	B-83 †	Height control
B	Shaft		Not Req.	RQ	FKS-1/4	Not Req.	Attach to R5A per instructions
R6A	1 Meg.	½	40X298	Q11-137, C-3†	AG-61-S	B-69	Vert. hold control
B	Shaft		Not Req.	Not Req.	KSS-5	AK-16 ∮	Attach to R6A per instructions
R7	6500Ω	2	40X302			SV-919	Focus control-Wire Wound

* Additional parts to be used with "Concentrikit".
† File slot in shaft to duplicate original.
‡ Saw off shaft of new control so that C-3 coupler can be employed to connect part of original shaft to new control.
∮ Cut off shaft to replacement control and attach original shaft using coupler.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED
R8	1000Ω	½	B85102	BTS-1000	Antenna Isolation
R9	1000Ω	½	B85102	BTS-1000	Antenna Isolation
R10	4700Ω	½	B83472	BTS-4700	RF Coil Shunt
R11	1000Ω	½	B85102	BTS-1000	RF Amp. Grid
R12	100Ω 20%	½	B84101	BTS-100	RF Amp. Cathode
R13	4700Ω	½	B83472	BTS-4700	RF Amp. Decoupling
R14	270KΩ 20%	½	B85274		Mixer Grid
R15	5600Ω	½	B83562		Mixer Plate
R16	22KΩ	½	B84223		Osc. Grid
R17	4700Ω	½	B83472	BTS-4700	Osc. Plate
R18	1000Ω	½	B85102	BTS-1000	AGC Network
R19	5600Ω 5%	½	B83562		1st Video IF Amp. Grid
R20	47Ω 5%	½	B83470		1st Video IF Amp. Cathode
R21	1000Ω	½	B85102	BTS-1000	1st Video IF Amp. Decoupling
R22	150Ω	½	B84151	BTS-150	Decoupling
R23	1000Ω	½	B85102	BTS-1000	AGC Network
R24	82000Ω 5%	½	B83822		2nd Video IF Amp. Grid
R25	33Ω 5%	½	B83330		2nd Video IF Amp. Ca thode
R26	1000Ω	½	B85102	BTS-1000	2nd Video IF Amp. Decoupling
R27	12KΩ 5%	½	B83123		3rd Video IF Amp. Grid
R28	150Ω	½	B84151	BTS-150	3rd Video IF Cathode
R29	330Ω	½	B84331	BTS-330	Decoupling
R30	22KΩ	½	B84223		3rd Video IF Coil Shunt
R31	2200Ω	½	B84222	BTS-2200	De coupling
R32	4700Ω 5%	½	B83472	BTS-4700-5%	Video Det. Diode Load
R33	5600Ω	½	C84562	BTA-5600	1st Video Amp. Plate
R34	2700Ω 5%	1	C83272	BTA-2700-5%	1st Video Amp. Plate
R35	33KΩ	½	B84333	BTS-33K	AGC Keying Grid
R36	22KΩ	½	B84223	BTS-22K	AGC Network
R37	470KΩ	½	B85474	BTS-470K	AGC Network
R38	270KΩ	½	B85274	BTS-270K	AGC Network
R39	100KΩ	½	B84104	BTS-100K	AGC Network
R40	1 Meg.	½	B84105	BTS-1 Meg.	2nd Video Amp. Grid

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R41	100Ω	½	B84101	BTS-100	2nd Video Amp. Cathode
R42	3900Ω 5%	½	B83392	BTS-3900-5%	2nd Video Amp. Plate
R43	10KΩ	½	B84104	BTS-10K	Isolation
R44	100KΩ 20%	½	B84104	BTS-100K	Picture Tube Grid
R45	1 Meg.	½	B84105	BTS-1 Meg.	DC Rest. Load
R46	100KΩ 20%	½	B84104	BTS-100K	Voltage Divider
R47	82Ω	½	B84820		Sound IF Amp. Cathode
R48	1000Ω	½	B85102	BTS-1000	Sound IF Amp. Decoupling
R49	470KΩ 20%	½	B85474		Limiter Grid
R50	22KΩ	½	B84223		Limiter Screen
R51	1000Ω	½	B85102	BTS-1000	Limiter Plate Decoupling
R52	5.1Ω	1	43X239	BW-5.1-4.7	Disc. Filament-Wire Wound
R53	100KΩ	½	B84104	BTS-100K	Disc. Diode Load
R54	100KΩ	½	B84104	BTS-100K	Disc. Diode Load
R55	68KΩ	½	B84683	BTS-68K	Tone Compensation
R56	10 Meg. 20%	½	B85106	BTS-10 Meg.	AF Amp. Grid
R57	270KΩ 20%	½	B85274	BTS-270K	AF Amp. Plate
R58	47KΩ 20%	½	B84473	BTS-47K	AF Amp. Plate Decoupling
R59	22KΩ	½	B84223	BTS-22K	AGC Network
R60	470KΩ 20%	½	B85474	BTS-470K	Audio Output Grid
R61	470Ω	1	C84471	BTA-470	Audio Output Cathode
R62	2.2 Meg.	½	B84225	BTS-2.2 Meg.	AGC Network
R63	1000Ω	2	D84102	BTB-1000	Audio Output Decoupling
R64	10KΩ	½	B84104	BTS-10K	Isolation
R65	1 Meg.	½	B84105	BTS-1 Meg.	Sync. Amp. Grid
R66	12KΩ	½	B83123	BTS-12K	Sync. Amp. Plate
R67	22KΩ	½	B84223	BTS-22K	Sync. Amp. Cathode
R68	2200Ω	½	B84222	BTS-2200	Isolation
R69	47KΩ 5%	½	B84473	BTS-47K-5%	1st Sync. Sep. Cathode
R70	820KΩ	½	B84824	BTS-820K	1st Sync. Sep. Plate
R71	68KΩ	½	B84683	BTS-68K	Voltage Divider
R72	1 Meg.	½	B84105	BTS-1 Meg.	2nd Sync. Sep. Grid
R73	33000Ω 5%	½	B83332	BTS-3300-5%	2nd Sync. Sep. Cathode
R74	1000Ω	½	B85102	BTS-1000	2nd Sync. Sep. Plate
R75	3300Ω 5%	½	B83332	BTS-3300-5%	2nd Sync. Sep. Plate
R76	22KΩ	½	B8422K	BTS-22K	Integrator
R77	8200Ω	½	B83822	BTS-8200	Integrator
R78	8200Ω	½	B83822	BTS-8200	Integrator
R79	1.5 Meg.	½	B84155	BTS-1.5 Meg.	Vert. Osc. Grid
R80	100KΩ 20%	½	B84104	BTS-100K	Voltage Divider
R81	1 Meg.	½	B84105	BTS-1 Meg.	Vert. Osc. Plate
R82	8200Ω	½	B83822	BTS-8200	Vert. Peaking
R83	3.3 Meg 20%	½	B85335	BTS-3.3 Meg.	Vert. Output Grid
R84	2200Ω	½	B84222	BTS-2200	Vert. Output Cathode
R85	270Ω	½	B85270	BTS-270	Vert. Output Decoupling
R86	100KΩ	½	B84104	BTS-100K	Horiz. Phase Det. Diode Load
R87	100KΩ	½	B84104	BTS-100K	Horiz. Phase Det. Diode Load
R88	4.7 Meg. 20%	½	B85475	BTS-4.7 Meg.	Horiz. Phase Det. Diode Load
R89	27KΩ	½	B84273	BTS-27K	Horiz. AFC Filter Network
R90	470KΩ 20%	½	B85474	BTS-470K	Horiz. AFC Filter Network
R91	1500Ω	½	B84152	BTS-1500	Horiz. Mult. Cathode
R92	100KΩ	½	B84104	BTS-100K	Horiz. Mult. Grid
R93	4700Ω 5%	½	B83472	BTS-4700-5%	Horiz. Mult. Plate
R94	270KΩ 20%	½	B85274	BTS-270K	Horiz. Mult. Plate
R95	470KΩ	½	B85474	BTS-470K	Horiz. Output Grid
R96	220Ω	8	D84221	BW-2-220	Horiz. Output Cathode
R97	220Ω	8	D84221	BW-2-220	Horiz. Output Cathode
R98	22KΩ	½	43X253		Horiz. Output Screen-Wire Wound
R99	150Ω	½	B84151		Parasitic Suppressor
R100	150Ω	½	B84151		Parasitic Suppressor
R101	100Ω	½	B84101		Parasitic Suppressor
R102	100Ω	½	B84101		Parasitic Suppressor
R103	3.9Ω	1	43X251		HV Rect. Filament-Wire Wound
R104	1 Meg.	1	C85105		HV Filter
R105	10KΩ	1	C84104	BTA-10K	Decoupling
R106	18KΩ	1	C84183	BTA-18K	Decoupling
R107	100KΩ	2	D84104	BTB-100K	Voltage Divider
R108	22Ω	1	C84220		Surge Limiter
R109	22Ω	1	C84220		Surge Limiter
R110	10KΩ	5	43X247	1 3/4A-10K	Bleeder-Wire Wound
R111	1000Ω	10	43X248	1 3/4A-1000	Filter-Wire Wound
R112	500Ω	10	43X245	1 3/4A-500	Filter-Wire Wound
R113	3900Ω	2	D83392	BTB-3900	Focus Coil Shunt
R114	2200Ω	8	D84222	BTB-2200	Focus Coil Shunt
R115	2200Ω	8	D84222	BTB-2200	Focus Coil Shunt
R116	4700Ω 5%	½	B83472	BTS-4700-5%	Feedback

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC @ 2.2A	720VCT .270ADC	5VAC @ 5A	6.3VAC @ 10.6A	53X302			TP-360

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: AIR LINE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	175Ω	1300Ω	54X5	A-8111 ①	A-3000 ①	TBO-2 ①	Vert. Block Osc. Trans.
T3	510Ω	3.8Ω	43X303				Hor. Output Trans.
	Tap @ 300Ω, 2.3Ω	Tap @ 3.6Ω SEC. 2 0Ω					
T4	1900Ω	10Ω	51X147	A-8112	A-3036	TSO-5.①	Vert. Output Trans.
T5A	20Ω		9A2080	DY-7	MD-70		Hor. Deflection Coil
B	6Ω						Vert. Deflection Coil
T6	670Ω		9A2081				Focus Coil

① Drill one new mounting hole.

AIRLINE MODEL 05WG-3030A

CRESCENT
H-2A1 SERIES

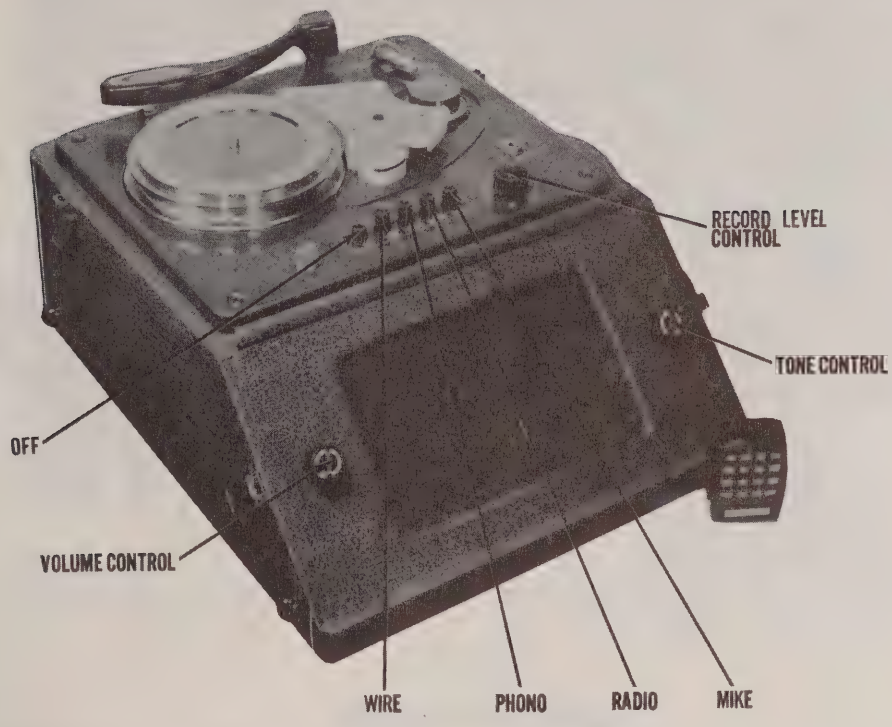

FIGURE 1

CRESCENT
H-2A1 SERIES

GENERAL INFORMATION

The Crescent H-2A1 Series Portable Wire Recorder is a combination record player and magnetic recorder-reproducer. The Crescent uses a standard spool of .004 or .0036 stainless steel wire which gives approximately an hour of continuous recording. The recordings may be played back immediately after the wire has been rewound. A recording will last indefinitely since the playback process has no effect on the wire; or a new recording may be made on an old spool since, in the recording process, any previous recording is erased. The turntable serves as a turntable for standard records as well as the takeup spool for the recording mechanism.

A plastic tape leader is attached at each end of the wire, one of which is used to thread the wire on the turntable, or the storage spool, and the other to trip the reset switch to shut off the motor at the end.

Manufactured by

CRESCENT INDUSTRIES, INC.

4140 WEST BELMONT AVENUE, CHICAGO 41, ILLINOIS

EXPORT: SCHEEL INTERNATIONAL, INC., CHICAGO 18, ILLINOIS, U.S.A.

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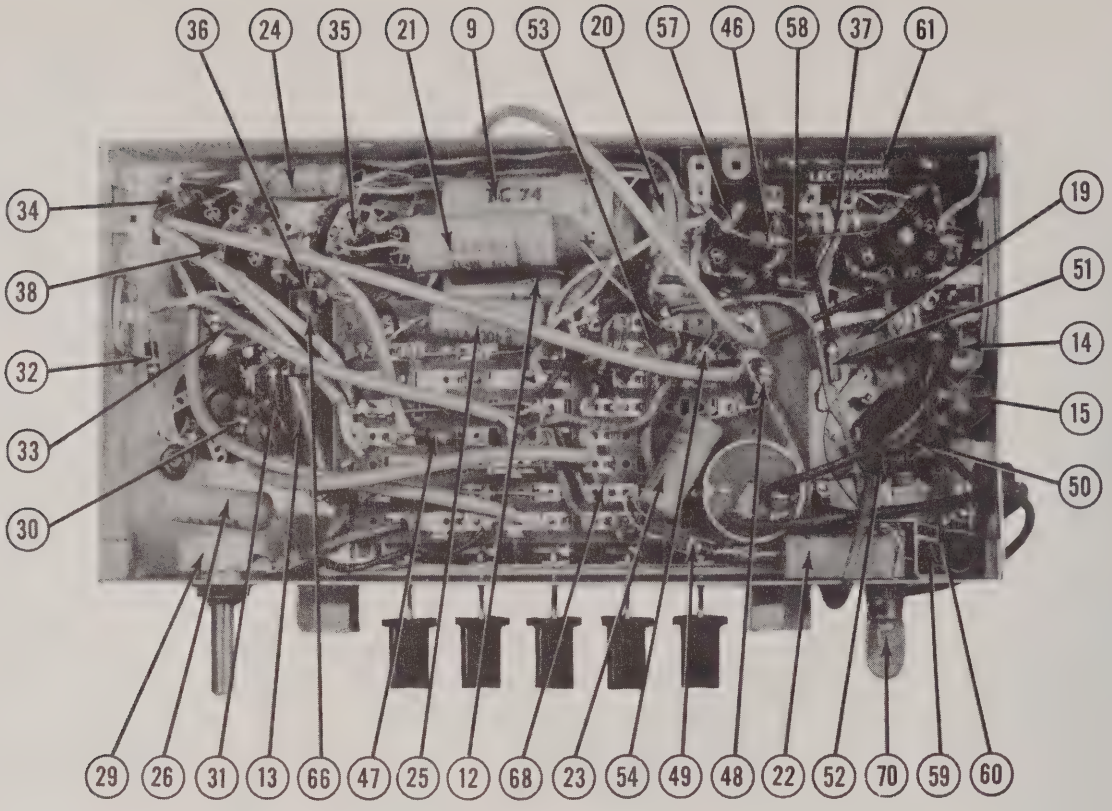

FIGURE 2

OPERATING

Reset Button

The reset button operates a switch that is in series with the driving motor. The mechanism will not operate until this button is depressed. At each end of the recording wire, a plastic tape leader is attached. These leaders are used to thread the wire on the turntable or storage spool; also, at the end of the wire travel, the tape leader passes under a trip arm which actuates an automatic switch. This causes the reset button to pop up and automatically shut off the mechanism. Before the mechanism will operate again, the reset button must be depressed.

Threading Wire on the Mechanism

Proper threading of the wire on the machine is important, as "wows" may result from improper procedure:

a. Be sure the reset button is depressed.

b. The recording head should be brought to its top position before the wire is placed on the mechanism. This may be done by turning the mechanical switch to "Rewind" and then turning it to "Off" when the head is at the top of its travel.

c. Place the spool, label side up, over the hub, or so that the wire feeds from the outside edge of recorder and the spool rotates clockwise, and press down on the spool until it is firmly seated. Loosen the end of the plastic leader from the spool and carefully pull it past the recorder head. While holding the leader against the inner surface of the channel, rotate the turntable by hand until two complete turns of wire are in the channel. The full length of the leader must be pressed smoothly against the inner surface of the channel or speed variations will result.

Safety Button

In order to put the switch into "Record" position, the button immediately to the right of the switch must be depressed. This safety feature is provided to prevent accidental erasure of recording over a program you wish to keep.

To Record from Microphone

a. Plug microphone into the jack on the top of the recorder mounting plate marked "Mike Input."

b. Depress the pushbutton marked "Record Mike."

c. Turn the recording level control full counterclockwise.

d. Make certain that the "Reset" button is depressed.

e. Turn the mechanical switch to "Record."

f. Turn the recording level control clockwise until the recording level indicator just flashes on the

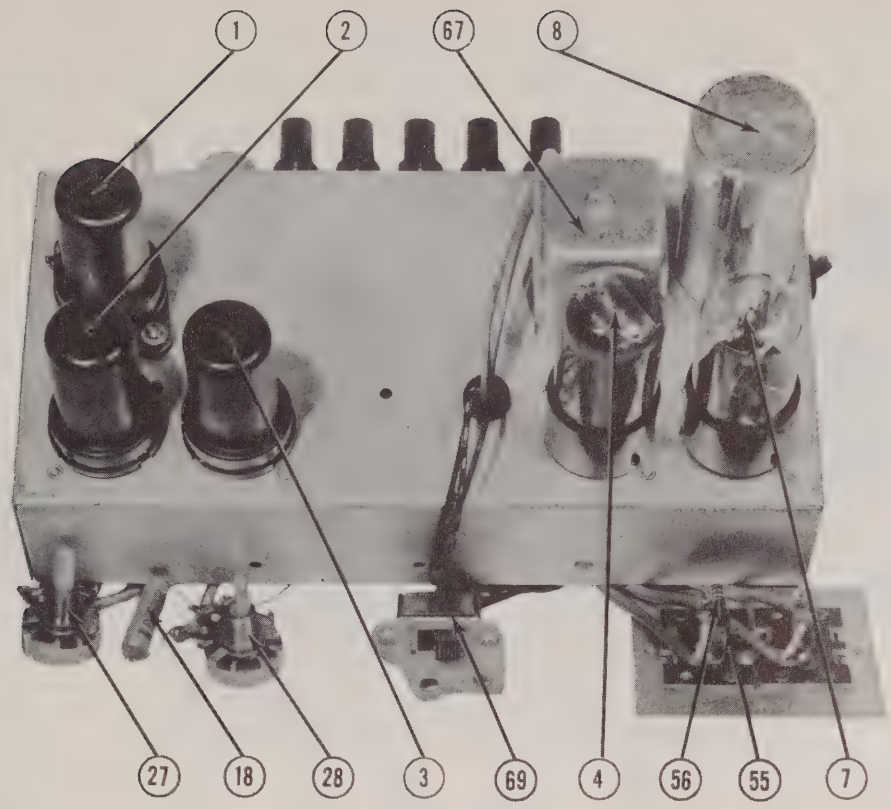

FIGURE 3

peaks, or loudest portion of the noises, or sounds in the room.

To Record from Disc Records

a. Depress the pushbutton marked "Record Phono." Be sure that you do not wish to keep any program which may be already on the wire as it will be erased automatically in the recording process.

b. Turn the recording level indicator full *counter-clockwise.*

c. Check the "Reset" button to see if it is depressed.

d. Place disc record on the turntable.

e. Turn the mechanical switch to the "Record" position.

f. Set the tone arm on the record.

g. Turn the recording level control clockwise until the indicator lamp flashes only on the extreme loud peaks of the record.

The disc record is now being recorded on the wire. The record may be heard while it is being recorded by adjusting the volume and tone controls located on the sloping front panel. Adjustment of these controls does not affect the recording in any way.

To Record from Radio

a. The cable connections described under the heading, "Connections to Radio," must be made before radio programs can be recorded.

b. Thread a spool of wire on the recorder.

c. Tune in the program you wish to record on your radio.

d. Turn the selector switch to "Record Radio."

e. Check the "Reset" button to see if it is depressed.

f. Turn the level-control full counter-clockwise.

g. Turn the mechanical switch to "Record."

h. Turn the level-control clockwise until the indicator lamp flashes on the extreme loud peaks of the radio program.

You are now recording the radio program. You may adjust the volume and tone controls of the radio in any way without affecting what is being recorded. Do not re-tune the radio while recording the program as this will adversely affect the quality of the recording.

To Play Wire Recordings

Thread the wire on mechanism as previously described, or if the program has just been recorded, place the mechanical switch in "Rewind" and allow the machine to rewind back to the beginning of the program. Depress the "Play Wire" pushbutton. Turn the mechanical switch to "Play." Adjust the volume and tone controls to suit your ear just as you would in listening to a radio program.

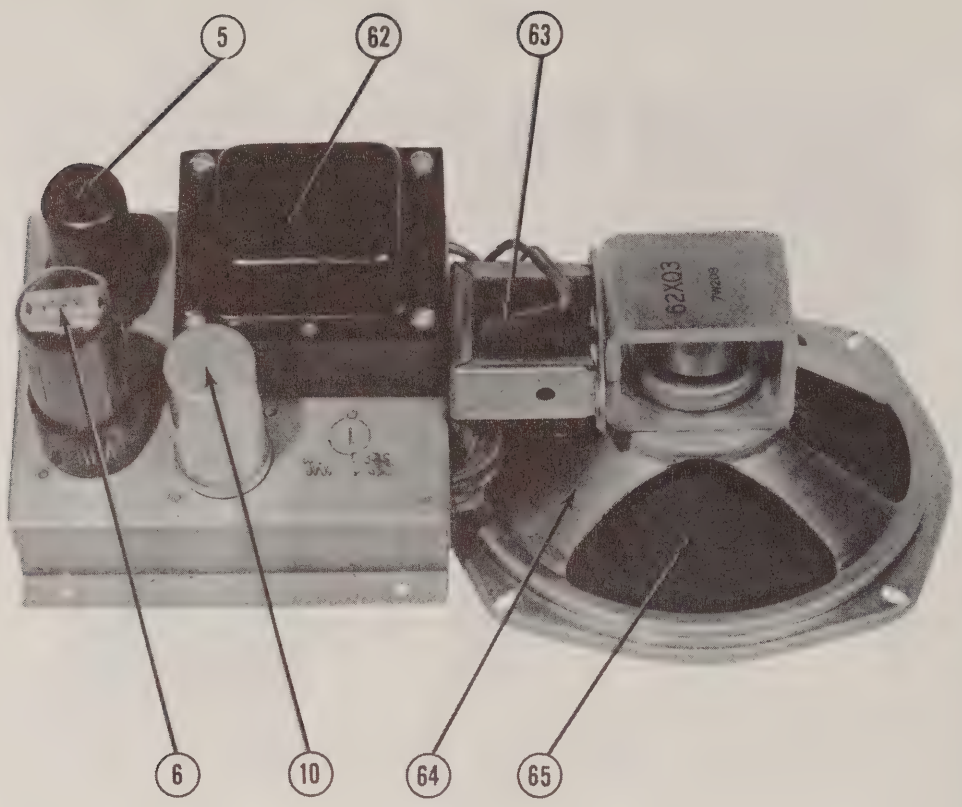

FIGURE 4

Connections to Radio

Three six-foot shielded cables are supplied with the wire recorder as follows:

1. A cable fitted with a plug on each end. This cable enables you to play back wire recordings through the audio system of your radio. Plug one end of the cable into the receptacle marked "High Output" on the side of the wire recorder, and insert the other plug into the "Phono Jack" of your radio.

2. A cable furnished with a phono plug on one end and a phono jack on the other end. This cable allows your phonograph to operate in the regular way. Insert the plug end into the "Low Output" jack of the recorder and insert the phono plug from your record changer, which you removed from your radio, into the jack on the other end of the cable.

3. A cable which has a plug on one end and is left bare on the other end. This cable enables you to record from your radio without the use of a microphone. The bare wire end of this cable should be soldered to the top or high audio voltage side of the volume control of your radio (see Figure 6). This terminal is the extreme clockwise terminal of the volume control. The other end of the cable should be plugged into the receptacle marked "Radio Input" on the side of the wire recorder.

This wire recorder is capable of recording from the microphone, or from its own phonograph, and of playing back through its own speaker without using either of the two connections to the radio. The first of these connections will allow you to take advantage of a more elaborate audio system, such as the system built into your console-type radio or individual amplifier system, when the recorder is not being used in portable work. The second cable, soldered to the top of the volume control, may be omitted if desired and radio programs may be recorded through the microphone. Recordings obtained through use of a microphone will not be equal in quality to results obtained if the recording connection is made through the volume control of your radio set.

To Rewind

After the wire has reached the end, the plastic leader passes under the trip arm, which in turn, shuts off the mechanism:

a. To rewind, take the plastic leader from the turntable channel and carefully pull it past the recorder head.

b. Place the leader in the channel of the storage spool and rotate by hand until several turns of wire are in the channel. Make sure the plastic leader is pressed smoothly against the back wall of the channel, as any variation of this diameter will cause "Wows" when you record or play the wire again.

c. Turn control switch to "Rewind" and press "Reset" button. When the wire has rewound completely, the plastic leader will pass under a trip arm which actuates the trip arm, and in turn, shuts off the mechanism.

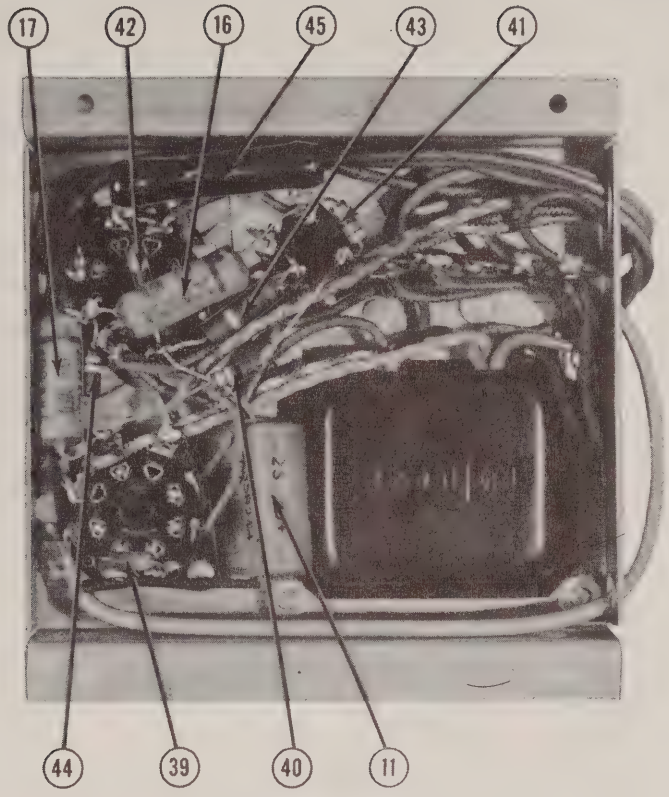

FIGURE 5

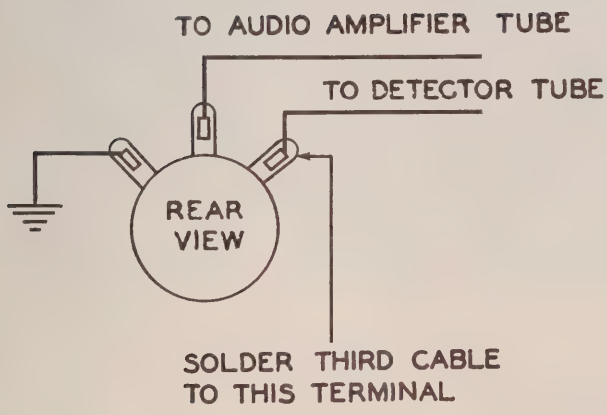

FIGURE 6

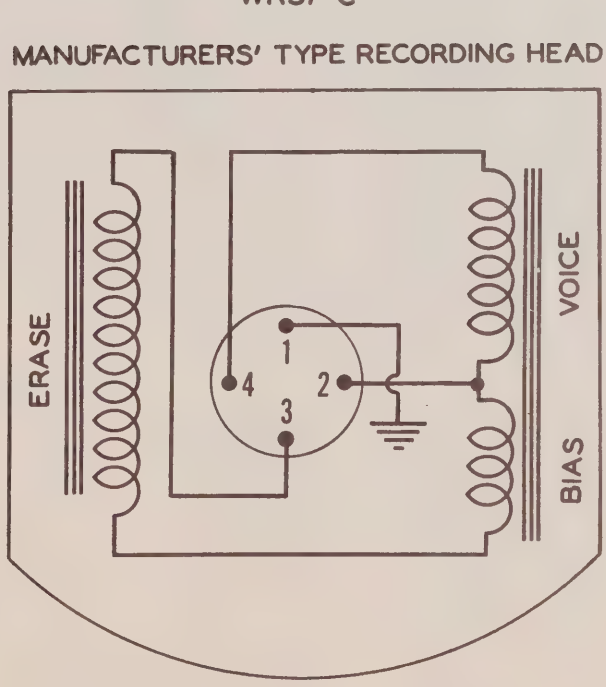

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FIGURE 7

Mechanical Unit

The schematic for the recording head and the mechanical unit are shown in (Figure 7) and (Figure 8). For further information covering the mechanical unit please refer to the Crescent Service Manual "1000 Series Recorder Mechanisms," form No. WDTD-7.

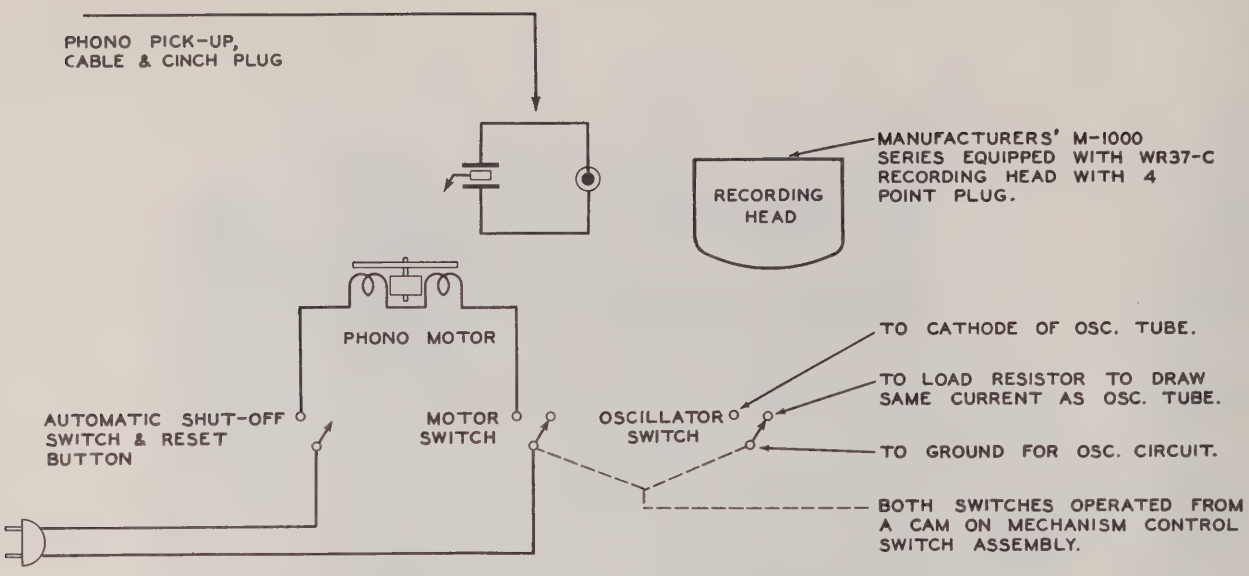
PHONO PICK-UP, CABLE & CINCH PLUG
RECORDING HEAD
MANUFACTURERS' M-1000 SERIES EQUIPPED WITH WR37-C RECORDING HEAD WITH 4 POINT PLUG.
PHONO MOTOR
TO CATHODE OF OSC. TUBE.
TO LOAD RESISTOR TO DRAW SAME CURRENT AS OSC. TUBE.
AUTOMATIC SHUT-OFF SWITCH & RESET BUTTON
MOTOR SWITCH
OSCILLATOR SWITCH
TO GROUND FOR OSC. CIRCUIT.
BOTH SWITCHES OPERATED FROM A CAM ON MECHANISM CONTROL SWITCH ASSEMBLY.

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FIGURE 8

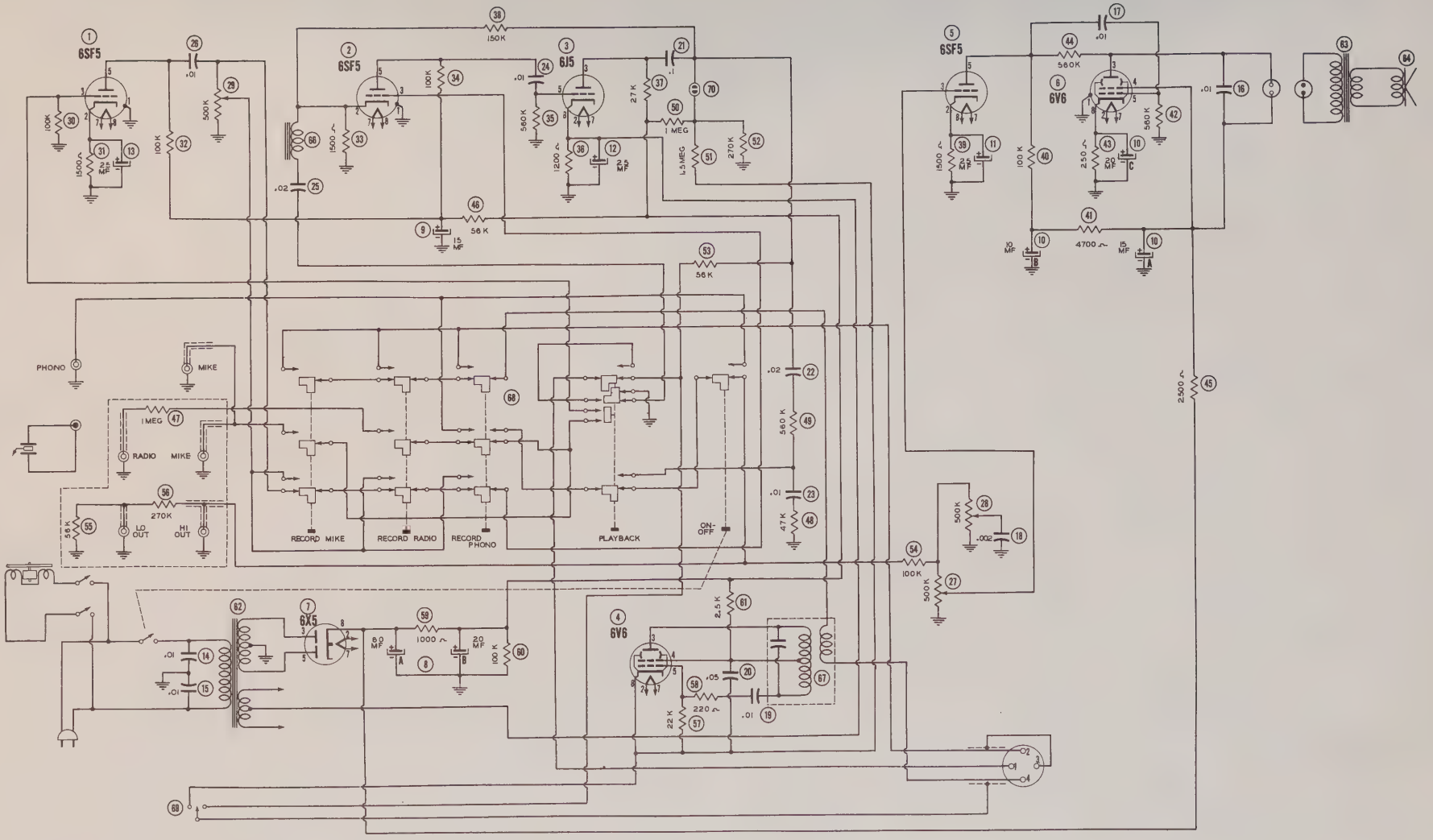
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6SF5	0V	1.1VDC	0V	0V	115VDC	0V	5VDC	5VDC
V2	6SF5	0V	1VDC	0V	175VDC	100VDC	2VDC	5VDC	5VDC
V3	6J5	0V	5VDC	185VDC	0V	0V	0V	5VDC	5VDC
V4	6V6GT	0V	5VDC	195VDC	195VDC	§-40VDC	0V	5VDC	0V
V5	6SF5	0V	1.2VDC	0V	5VDC	125VDC	0V	5VDC	5VDC
V6	6V6GT	0V	5VDC	190VDC	200VDC	0V	280VDC	5VDC	9VDC
V7	6X5GT	0V	5VDC	260VAC	§-40VDC	260VAC	195VDC	5VDC	280VDC

Voltage between filament pins is 6.8 volts AC.
V & R taken with push-button switch in record mike position.
§Taken with vacuum tube voltmeter.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6SF5	0Ω	1.5KΩ	100KΩ	1NF	200KΩ	1NF	1.2KΩ	1.2KΩ
V2	6SF5	0Ω	1.5KΩ	360KΩ	70KΩ	200KΩ	40KΩ	1.2KΩ	1.2KΩ
V3	6J5	0Ω	1.2KΩ	100KΩ	1NF	560KΩ	0Ω	1.2KΩ	1.2KΩ
V4	6V6GT	0Ω	1.2KΩ	70KΩ	70KΩ	22KΩ	0Ω	1.2KΩ	0Ω
V5	6SF5	0Ω	1.5KΩ	230KΩ	1.2KΩ	660KΩ	0Ω	1.2KΩ	1.2KΩ
V6	6V6GT	0Ω	1.2KΩ	100KΩ	100KΩ	560KΩ	70KΩ	1.2KΩ	250Ω
V7	6X5GT	0Ω	1.2KΩ	150Ω	25KΩ	160Ω	70KΩ	1.2KΩ	70KΩ



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PARTS LIST

Ref. No.	DESCRIPTION
1	Tube, 6SF5, 1st AF amp.
2	Tube, 6SF5, 2nd AF amp.
3	Tube, 6J5, record driver
4	Tube, 6V6GT, bias oscillator
5	Tube, 6SF5, playback amplifier
6	Tube, 6V6GT, power output
7	Tube, 6X5GT, rectifier
8A	Capacitor, 60 mfd. @ 450 V., electrolytic, filter
8B	Capacitor, 20 mfd. @ 450 V., electrolytic, filter
9	Capacitor, 15 mfd. @ 450 V., electrolytic, decoupling
10A	Capacitor, 15 mfd. @ 350 V., electrolytic, decoupling
10B	Capacitor, 10 mfd. @ 350 V., electrolytic, decoupling
10C	Capacitor, 20 mfd. @ 25 V., electrolytic, cathode bypass
11	Capacitor, 25 mfd. @ 25 V., electrolytic, cathode bypass
12	Capacitor, 25 mfd. @ 25 V., electrolytic, cathode bypass
13	Capacitor, 25 mfd. @ 25 V., electrolytic, cathode bypass
14	Capacitor, .01 mfd. @ 400 V., line filter
15	Capacitor, .01 mfd. @ 400 V., line filter
16	Capacitor, .01 mfd. @ 400 V., output plate bypass
17	Capacitor, .01 mfd. @ 400 V., audio coupling
18	Capacitor, .002 mfd. @ 400 V., tone compensation
19	Capacitor, .01 mfd. @ 400 V., bias osc. grid cap.
20	Capacitor, .05 mfd. @ 400 V., bias osc. screen bypass
21	Capacitor, .1 mfd. @ 400 V., audio coupling
22	Capacitor, .02 mfd. @ 400 V., audio coupling
23	Capacitor, .01 mfd. @ 400 V., tone compensation
24	Capacitor, .01 mfd. @ 400 V., audio coupling
25	Capacitor, .02 mfd. @ 400 V., tone compensation
26	Capacitor, .01 mfd. @ 400 V., audio coupling
27	Volume control, 500K ohm
28	Tone control, 500K ohm
29	Record level control, 500K ohm
30	Resistor, 100K ohm, ½ watt, 1st AF grid
31	Resistor, 1500 ohm, ½ watt, 1st AF cathode
32	Resistor, 100K ohm, ½ watt, 1st AF plate load
33	Resistor, 1500 ohm, ½ watt, 2nd AF cathode
34	Resistor, 100K ohm, ½ watt, 2nd AF plate load
35	Resistor, 560K ohm, ½ watt, record driver grid
36	Resistor, 1200 ohm, ½ watt, record driver cathode
37	Resistor, 27K ohm, 1 watt, record driver plate load
38	Resistor, 150K ohm, ½ watt, feedback
39	Resistor, 1500 ohm, ½ watt, playback at cathode
40	Resistor, 100K ohm, ½ watt, playback at plate load
41	Resistor, 4700 ohm, ½ watt, playback at plate decoupling
42	Resistor, 560K ohm, ½ watt, output grid
43	Resistor, 250 ohm, 1 watt, output cathode
44	Resistor, 560K ohm, ½ watt, feedback
45	Resistor, 2500 ohm, 10 watt, decoupling
46	Resistor, 56K ohm, ½ watt, voltage dropping
47	Resistor, 1 meg., ½ watt, isolation
48	Resistor, 47K ohm, ½ watt, tone compensation
49	Resistor, 560K ohm, ½ watt, tone compensation
50	Resistor, 1 meg., ½ watt, neon indicator net
51	Resistor, 1.5 meg., ½ watt, neon indicator net
52	Resistor, 270K ohm, ½ watt, neon indicator net
53	Resistor, 56K ohm, ½ watt, neon indicator net
54	Resistor, 100K ohm, ½ watt, tone compensation
55	Resistor, 56K ohm, ½ watt, tone compensation
56	Resistor, 270K ohm, ½ watt, tone compensation
57	Resistor, 22K ohm, ½ watt, bias oscillator grid
58	Resistor, 220 ohm, ½ watt, parasitic suppressor
59	Resistor, 1000 ohm, 10 watt, filter
60	Resistor, 100K ohm, 2 watt, bleeder
61	Resistor, 2500 ohm, 10 watt, voltage dropping
62	Power transformer
63	Output transformer
64	6" PM speaker
65	Cone (3.5 ohm voice coil)
66	Tone compensation coil
67	Bias oscillator coil
68	Function switch
69	Record-erase switch
70	Neon indicator

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DUMONT MODELS

RA-112A, RA-113

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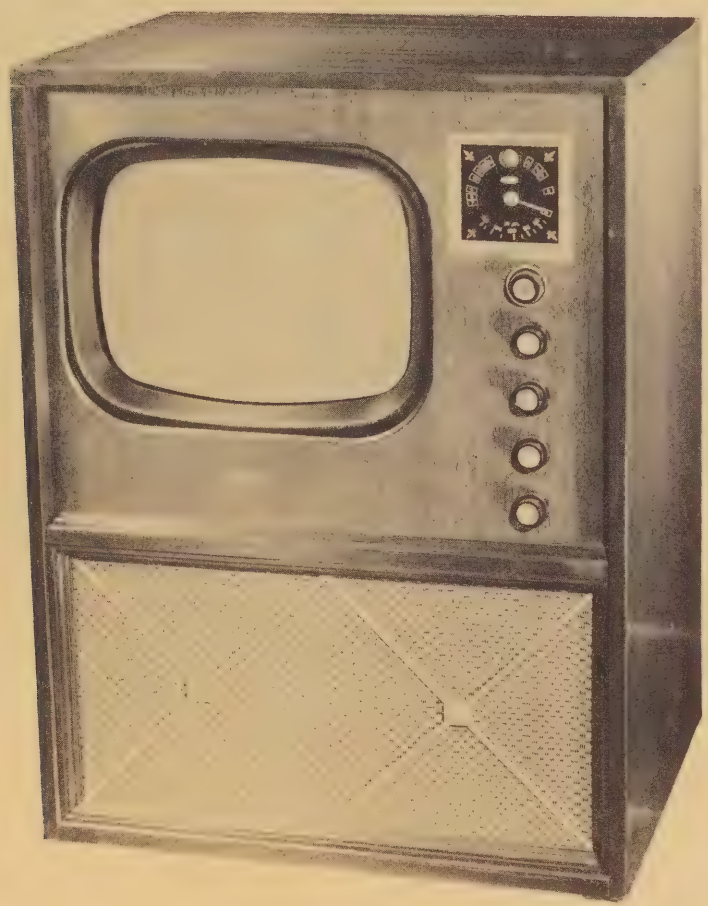

MODEL "BROOKVILLE"

DUMONT MODELS

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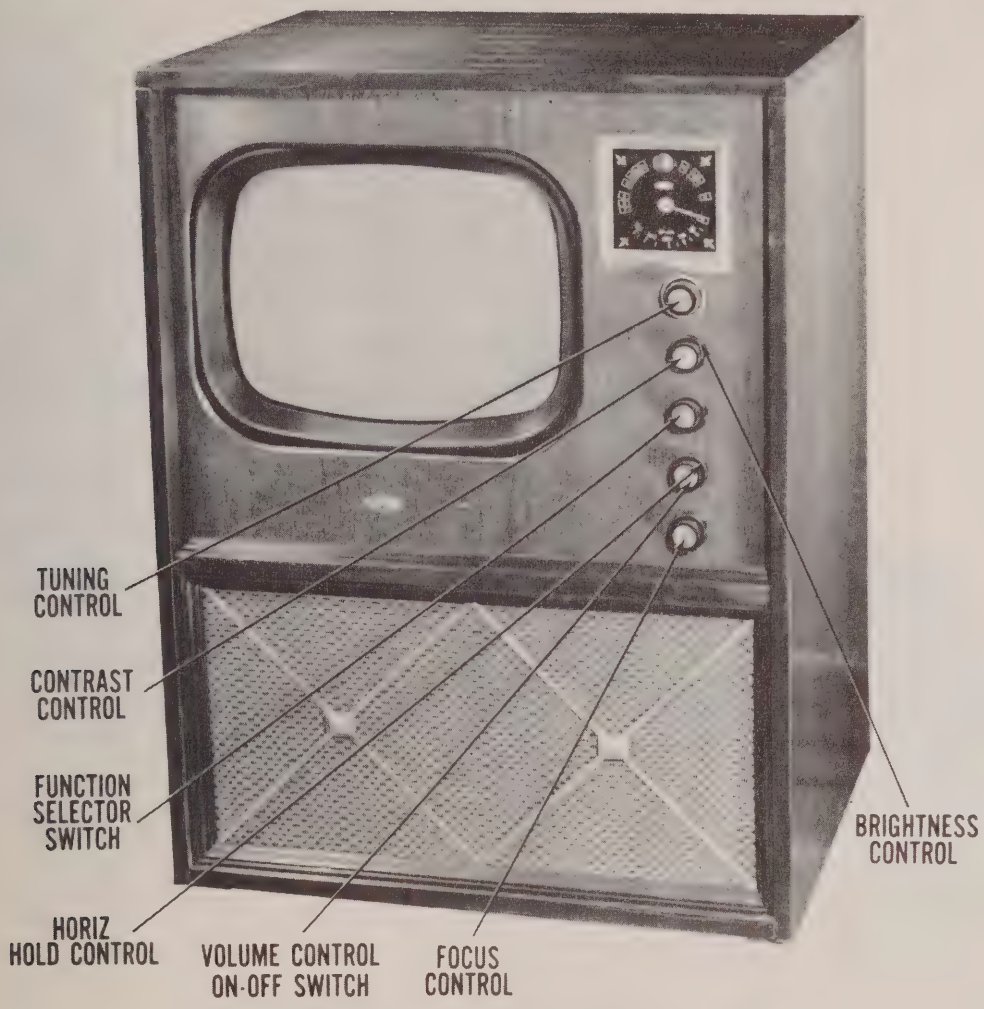

DUMONT
MODELS RA-112A, RA-113

DUMONT MODEL RA-113 "BROOKVILLE"

TRADE NAME	Dumont Models RA-112A "Ardmore, Mt. Vernon, Westerly," RA-113 "Brookville, Burlingame, Revere."
MANUFACTURER	Allen B. Dumont Labs., Inc., 2 Main Ave., Passiac, N.J.
TYPE SET	TV-FM Receiver
TUBES	Twenty-Six

POWER SUPPLY 110-120 Volts AC-60 Cycle RATING 2.01 Amp. @ 117 Volts AC
TUNING RANGE—44-216MC (Continous Tuning)

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 7
Horizontal Sweep Circuit Adjustment 10
Parts List And Description ..... 13 thru 16
Photographs
Cabinet - Rear View 10
Capacitor Identification 11, 18
Chassis - Top View 3, 19
Photographs (Continued)
RF Tuner 7
Resistor Identification 12, 17
Trans., Inductor And Alignment Identification 4, 9
Schematic 2
Tube Placement Chart 5
Voltage And Resistance Measurements 8

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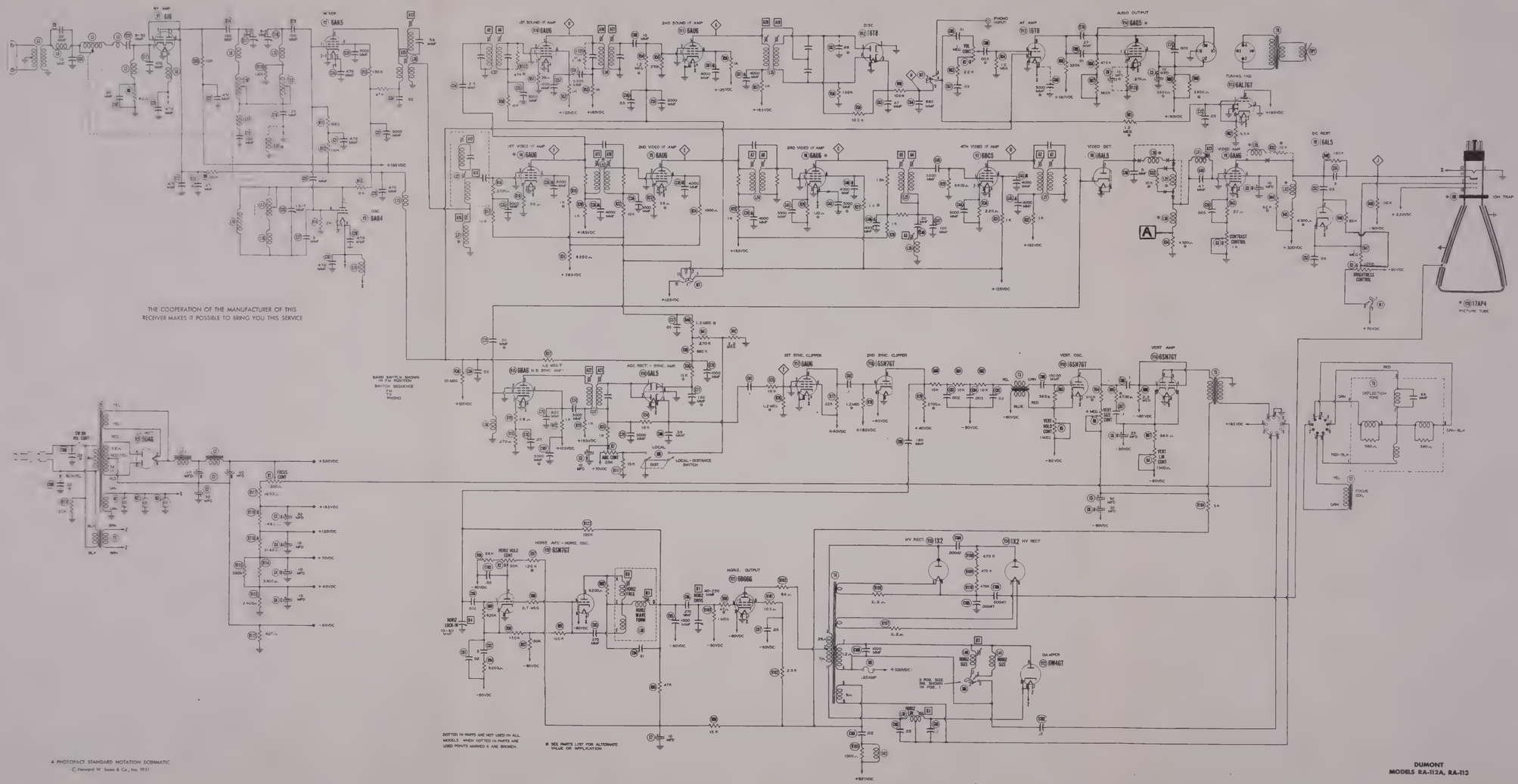
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
BAND SWITCH SHOWN IN FM POSITION
SWITCH SEQUENCE TV PHONO
LOCAL - DISTANCE SWITCH
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DUMONT
MODELS RA-112A, RA-113

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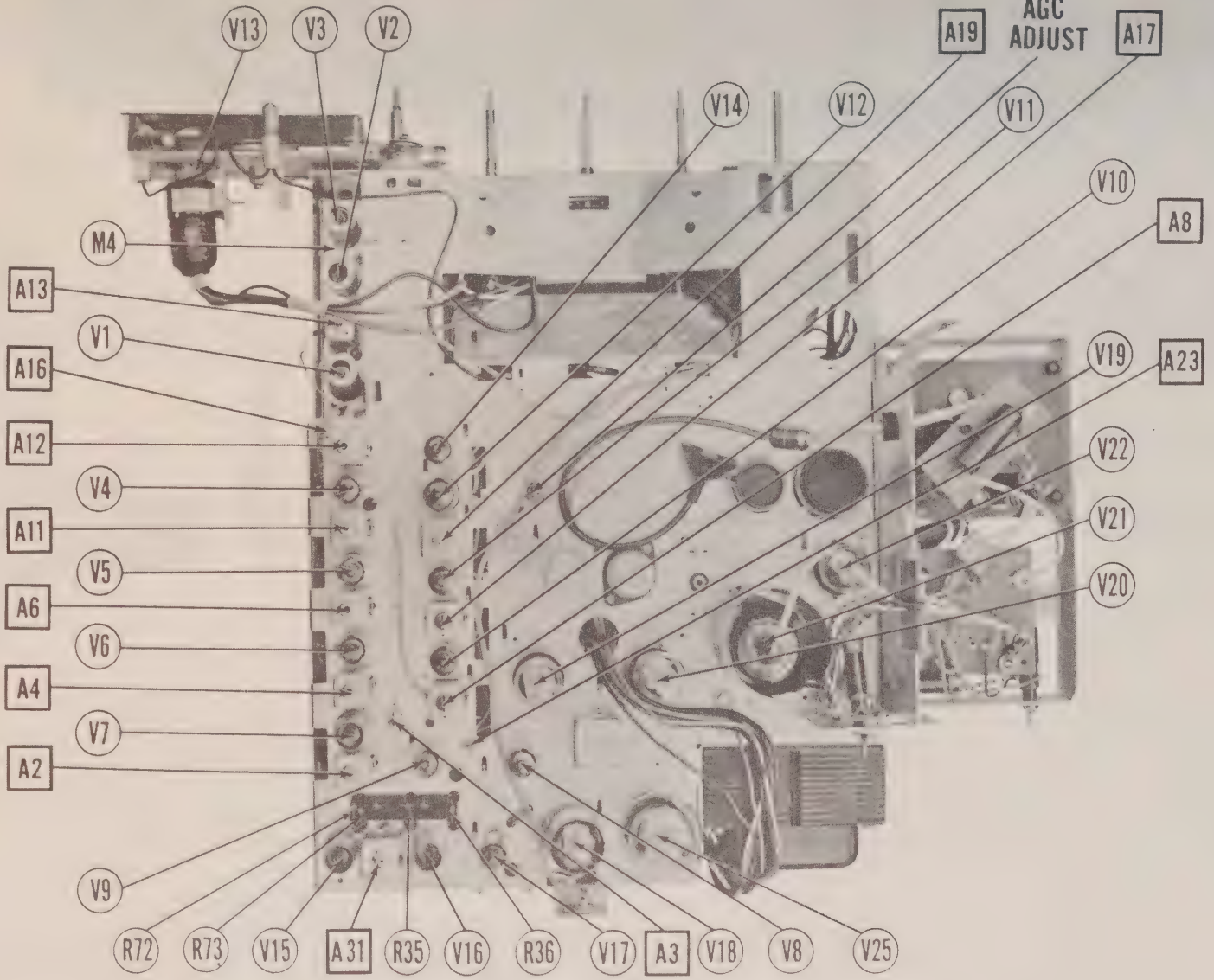
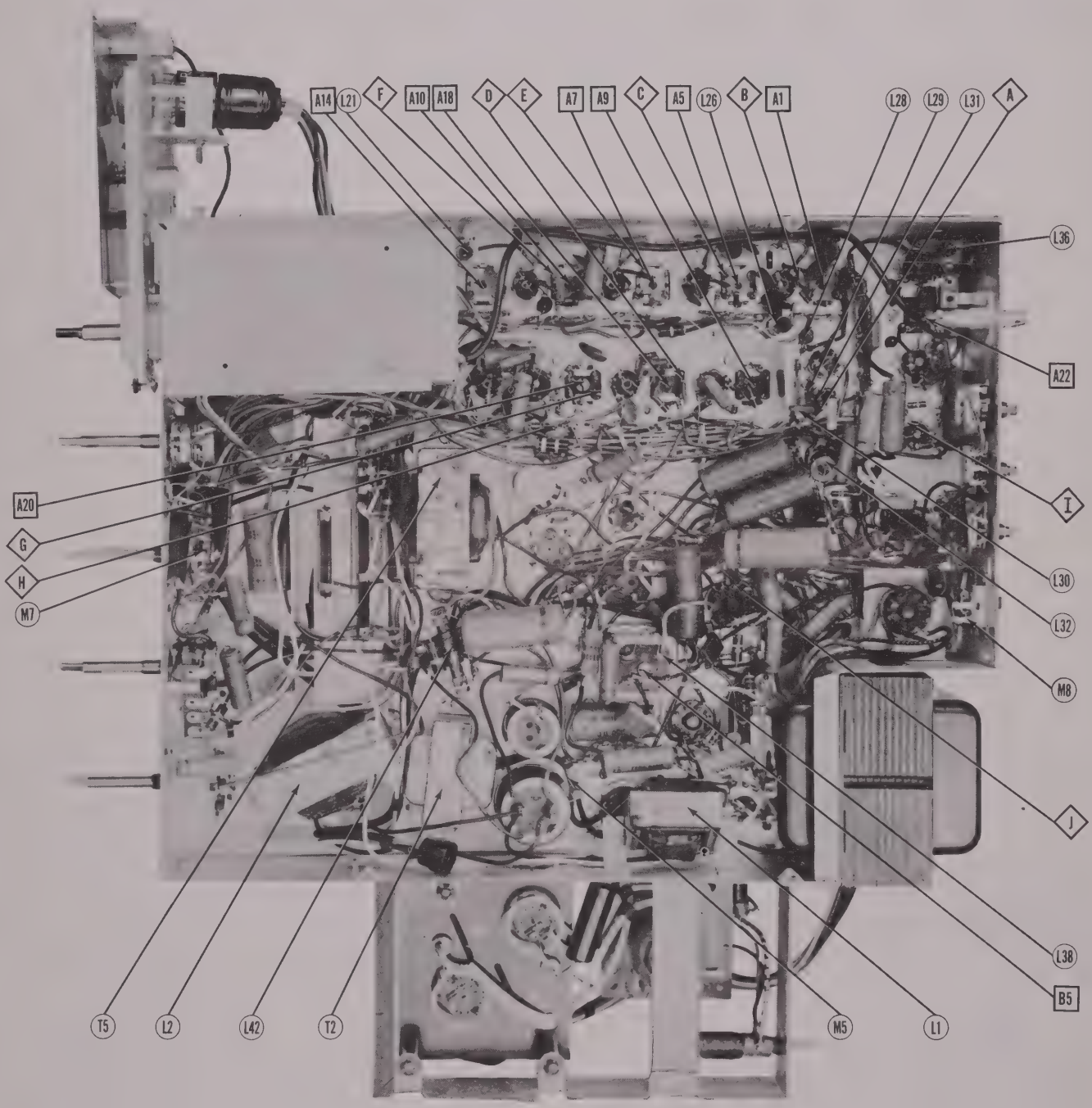
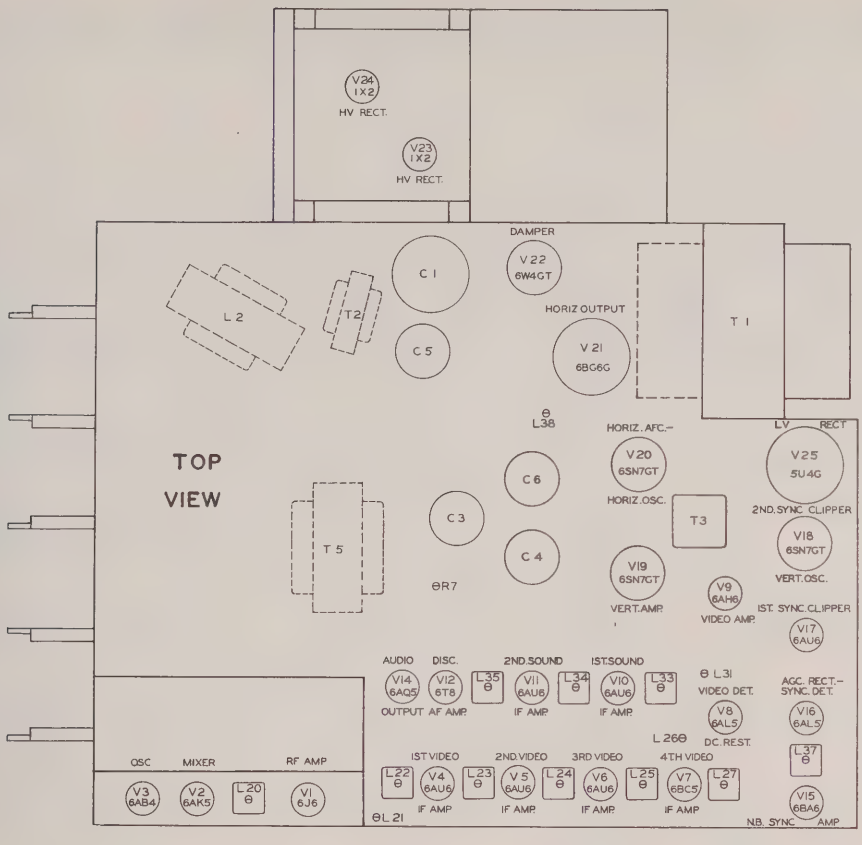
MODELS RA-112A, RA-113

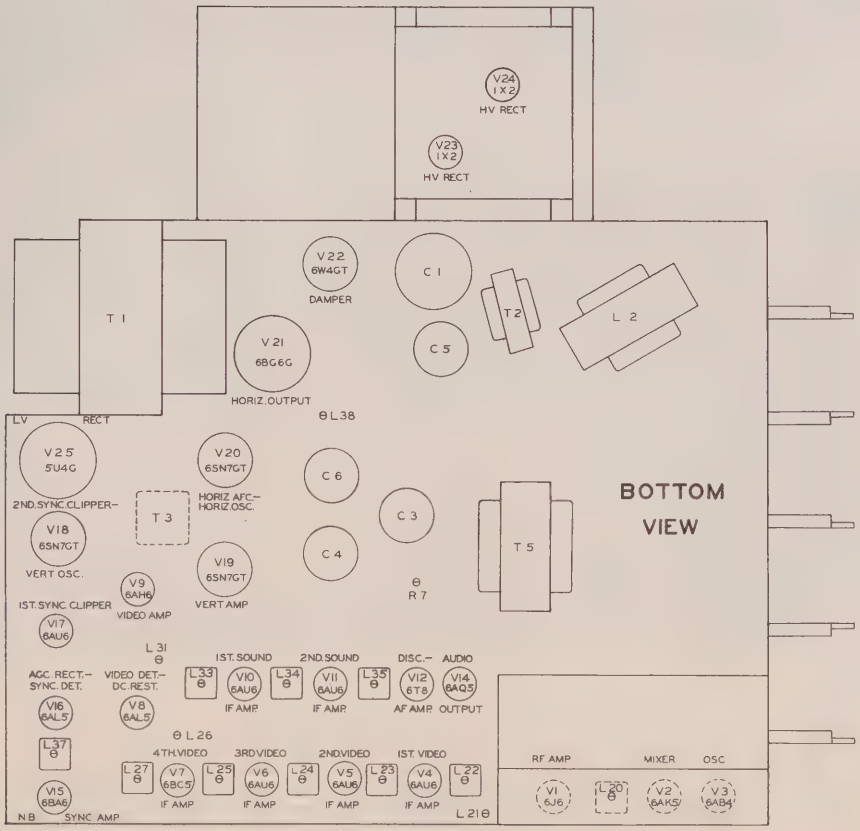


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To eliminate the high voltage shock hazard, prevent erroneous indications, and protect the components of the receiver during alignment, remove the following tubes.

6W4GT (V22) damper
6AK5 (V2) mixer
6AB4 (V3) oscillator
6AQ5 (V14) audio aoutput
6AU6 (V17) 1st Sync. clipper

Turn the function selector to "TV" (center position).

Turn the AGC control fully counter-clockwise.

Insert a dummy mixer tube in the tuner, The dummy tube is made by clipping off pin 1 of a 6AK5 and connecting a piece of wire to the remainder of the pin. Connect the high side of the sweep generator to the wire extension.

Turn the tuning control to channel 7.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

SOUND AND VIDEO IF ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.005MFD	High side to pin 1 (Grid) of 6BC5 (V7). Low side to chassis.	24MC (10MC SWP)	21.75MC 22.25MC 22.75MC 25.5MC 26.25MC	7	Vert. Amp. to Point (A). Low side to chassis.	A1, A2	Adjust for response curve similar to figure 1 with markers as shown.
2.	.005MFD	High side to pin 1 (Grid) of 6AU6 (V6). Low side to chassis.	Not used	21.75MC (400 ∿ AM Mod.)	"	Vert. Amp. thru detector probe (Fig. 2) to Point (B). Low side to chassis.	A3	Adjust for MINIMUM 400 ∿ indication on scope.
3.	.005MFD	"	24MC (10MC SWP)	22.25MC 22.75MC 25.5MC 26.25MC	"	"	A4, A5	Adjust for response curve similar to figure 3 with markers as shown.
4.	.005MFD	High side to pin 1 (Grid) of 6AU6 (V5). Low side to chassis.	"	21.75MC 22.25MC 22.75MC 25.5MC 26.25MC	"	Vert. Amp. thru detector probe to Point (C). Low side to chassis.	A6, A7	Adjust for response curve similar to figure 4 with markers as shown.
5.	.005MFD	High side to pin 1 (Grid) of 6AU6 (4). Low side to chassis.	21.75MC (2MC SWP)	21.65MC 21.75MC 21.85MC	"	Vert. Amp. thru detector probe to Point (D). Low side to chassis.	A8, A9	Adjust for response curve similar to figure 5 with markers as shown.
6.	.005MFD	"	24MC (10MC SWP)	21.75MC 22.25MC 22.75MC 25.5MC 26.25MC	"	Vert. Amp. thru detector probe to Point (E). Low side to chassis.	A10, A11	Adjust for response curve similar to figure 6 with markers as shown.
7.	.005MFD	High side to pin 1 (Grid) of dummy mixer tube (V2). Low side to chassis.	Not used	27.25MC (400 ∿ Mod.)	"	Vert. Amp. thru detector probe to Point (F). Low side to chassis.	A12, A13	Adjust for minimum 400 ∿ indication on scope.
8.	.005MFD	"	24MC	21.75MC 22.25MC 22.75MC 25.5MC 26.25MC	"	"	A14, A15, A16	Adjust for response curve similar to figure 7 with markers as shown. Some early production models do not have A16. On those models the coupling is adjusted by changing the coupling link in the transformer. This adjustment is sealed at the factory and should not require adjustment in the field.
9.	.005MFD	High side to pin 1 (Grid) of 6AU6 (V10). Low side to chassis.	21.75MC (2MC SWP)	21.65MC 21.75MC 21.85MC	"	Vert. Amp. thru detector Probe to Point (G). Low side to chassis.	A17, A18	Adjust for response curve similar to figure 8 with markers as shown.
10.	.005MFD	"	"	"	"	Vert. Amp. to Point (H). Low side to chassis.	A19, A20	Adjust for response curve similar to figure 9 with markers as shown.
11.	.005MFD	High side to pin 1 (Grid) of 6BC5 (V7). Low side to chassis.	24MC (4MC SWP)	25.5MC 26.25MC	"	Vert. Amp. to Point (I). Low side to chassis.	A21, A22	Adjust for response curve similar to figure 10 with markers as shown.
12.	.005MFD	High side to pin 7 (plate) of 6AL5 (V8). Low side to chassis.	Not used	4.5MC (400 ∿ AM Mod.)	"	Vert. Amp. thru detector probe to Point (J). Low side to chassis.	A23	Adjust for MINIMUM 400 ∿ indication on scope.

THE TUNER PORTION OF THIS RECEIVER HAS BEEN PROPERLY ADJUSTED AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS PORTION SHOULD NOT BE REQUIRED.

AGC ADJUSTMENT

Replace all of the original tubes.

Turn the set on and tune in a test pattern known to be of good quality and free from ghosts.

Turn the AGC control to maximum clockwise, then counter-clockwise until the picture brightens . Then turn the control very slowly clockwise to the point where the picture just begins to grow dim.

If evidence of "ringing" is present in the picture, adjust A-11 and /or A5 no more than 1/2 turn each to remove the "ringing". If evidence of "smearing" is present in the picture, adjust A14 no more than 1 turn, and /or A1 no more than 1/2 turn to remove the smear.

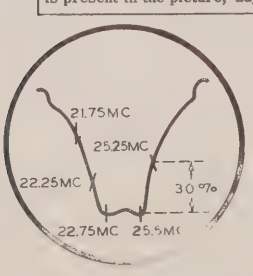


FIG.1

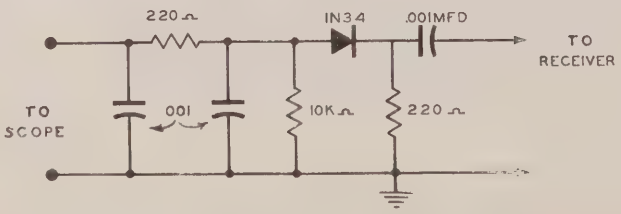


FIG. 2

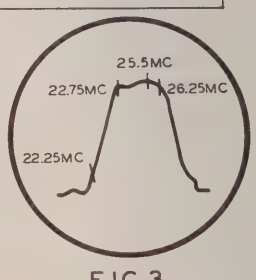


FIG.3

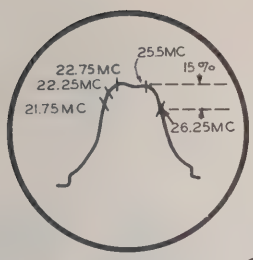


FIG.4

FIG.5

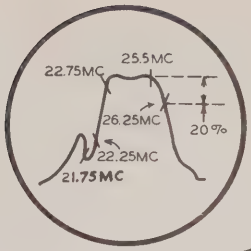


FIG.6

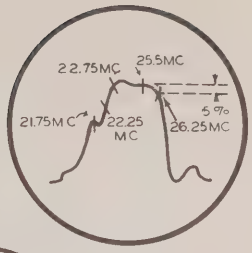


FIG.7

FIG.8

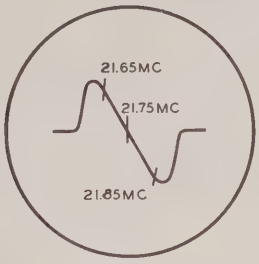


FIG.9

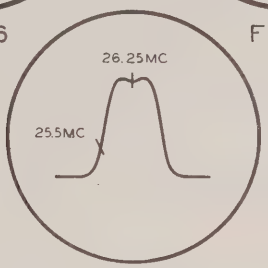


FIG. 10

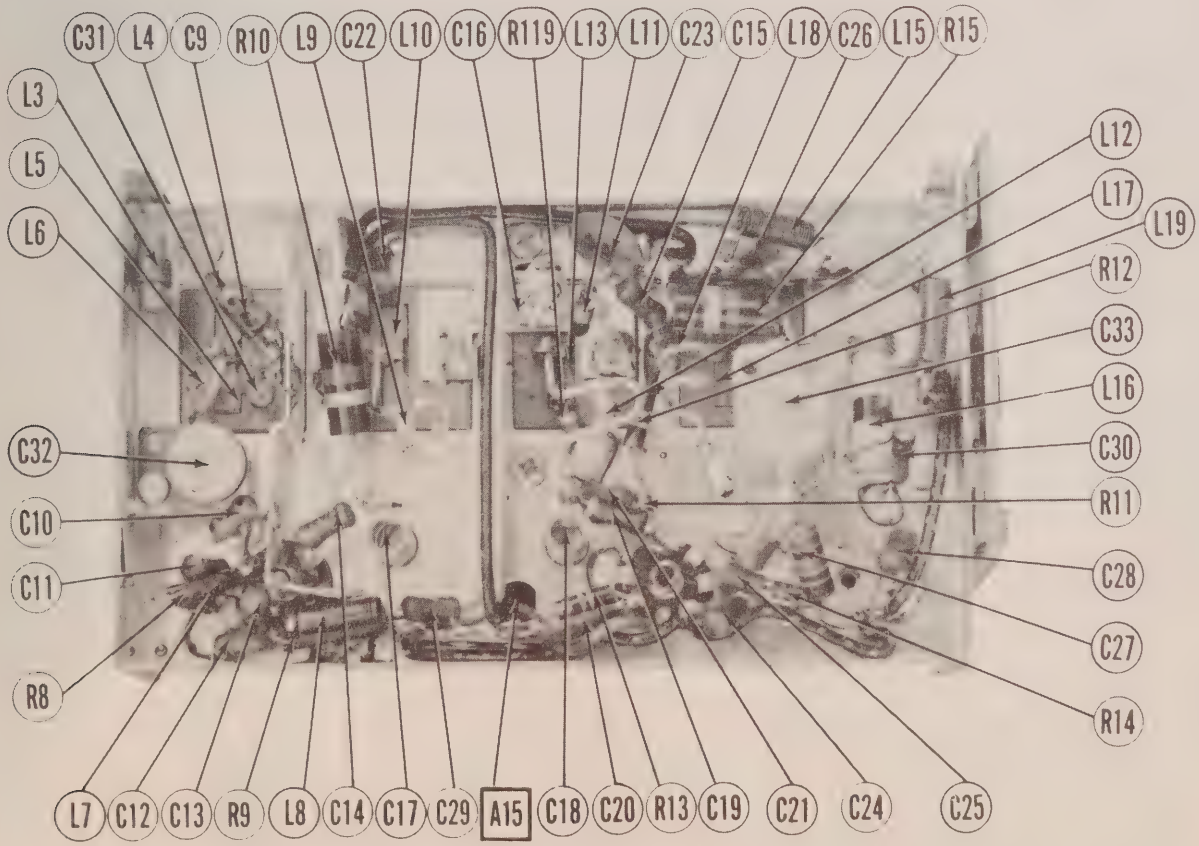
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL:

1. Remove eight push-on type control knobs.
2. Remove five wood screws holding rear cover in place. Remove rear cover.
3. Disconnect picture tube socket.
4. Disconnect power leads at base of yoke; disconnect high voltage lead.
5. Disconnect speaker leads.
6. Remove four 5/16" hex head bolts holding chassis in cabinet. Remove chassis.
7. Remove four 5/16" hex nuts holding speaker in cabinet. Remove speaker.

PICTURE TUBE REMOVAL:

1. Follow instructions as outlined in steps 2, 3, and 4 above.
2. Remove three 5/16" hex head screws holding deflection yoke in place. Remove deflection yoke.
3. Remove two 5/16" hex head screws, and two 3/8" hex head screws holding mask to front of cabinet.
4. Loosen four 3/8" hex head screws holding deflection yoke brace to cabinet. Slide this piece forward.
5. Remove picture tube.



RF TUNER

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	105VDC	105VDC	0V	6.3VAC	-1.2VDC	-1.2VDC	.8VDC		
V 2	6AK5	-6.5VDC	0V	0V	6.3VAC	70VDC	55VDC	0V		
V 3	6AB4	130VDC	0V	0V	6.3VAC	0V	§-4.2VDC	0V		
V 4	6AU6	-.4VDC	0V	0V	6.3VAC	190VDC	135VDC	.6VDC		
V 5	6AU6	-.4VDC	0V	0V	6.3VAC	190VDC	135VDC	.6VDC		
V 6	6AU6	0V	0V	0V	6.3VAC	180VDC	130VDC	1.4VDC		
V 7	6BC5	0V	1.7VDC	0V	6.3VAC	190VDC	130VDC	1.7VDC		
V 8	6AL5	0V	-70VDC	0V	6.3VAC	-35VDC	0V	-.9VDC		
V 9	6AH6	-.8VDC	0V	0V	6.3VAC	285VDC	245VDC	4.8VDC		
V 10	6AU6	-.3VDC	0V	0V	6.3VAC	145VDC	135VDC	.6VDC		
V 11	6AU6	-.6VDC	0V	0V	6.3VAC	145VDC	135VDC	0V		
V 12	6T8	-1VDC	-1VDC	-.2VDC	6.3VAC	0V	-1.5VDC	0V	-1VDC	70VDC
V 13	6AL7GT	.7VDC	6.3VAC	185VDC	0V	0V	0V	0V	.7VDC	
V 14	6AQ5	0V	7.6VDC	6.3VAC	0V	140VDC	150VDC	0V		
V 15	6BA6	0V	0V	0V	6.3VAC	145VDC	130VDC	7.6VDC		
V 16	6AL5	0V 70VDC	0V 70VDC	0V	6.3VAC	2VDC 75VDC	0V	-.2VDC -2.8VDC		
V 17	6AU6	-.8VDC	0V	0V	6.3VAC	30VDC	40VDC	0V		
V 18	6SN7GT	-70VDC -85VDC	85VDC -18VDC	-60VDC	-60VDC	15VDC	-60VDC	6.3VAC	0V	
V 19	6SN7GT	-25VDC	370VDC	-40VDC -48VDC	-25VDC	370VDC	-40VDC -48VDC	0V	6.3VAC	
V 20	6SN7GT	-75VDC	15VDC	-80VDC	-130VDC	140VDC	-65VDC	6.3VAC	0V	
V 21	6BG6G	0V	0V	-70VDC	0V	-38VDC	-38VDC	6.3VAC	320VDC	TOP CAP *
V 22	6W4GT	0V	0V	450VDC	0V	320VDC	0V	¶ 320VDC	¶ 320VDC	
V 23	1X2	* DO NOT MEASURE								
V 24	1X2	* DO NOT MEASURE								
V 25	5U4G	0V	335VDC	0V	475VAC	0V	475VAC	0V	335VDC	
V 26	17AP4	0V	-35VDC	PIN 10 320VDC	PIN 11 55VDC	PIN 12 6.3VAC				

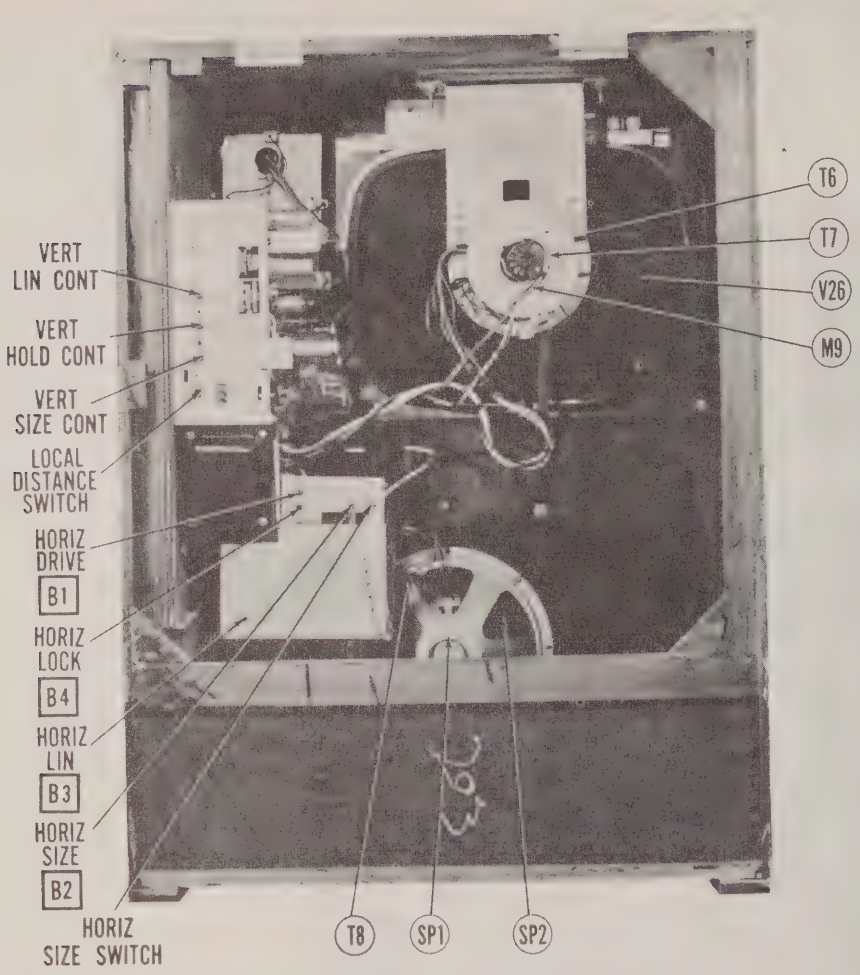
SELECTOR SWITCH IN "TV" POSITION
LOCAL-DISTANT SWITCH IN "LOCAL" POSITION
HORIZ. SIZE SWITCH IN POSITION 3
§ TAKEN IN VACUUM TUBE VOLTMETER
* DO NOT MEASURE
¶ 6.3VAC MEASURED ACROSS FILAMENTS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†13KΩ	†13KΩ	0Ω	.1Ω	2 Meg.	2 Meg.	82Ω		
V 2	6AK5	3 Meg.	0Ω	0Ω	.1Ω	†50KΩ	†150KΩ	0Ω		
V 3	6AB4	†13KΩ	Inf.	0Ω	.1Ω	Inf.	12KΩ	0Ω		
V 4	6AU6	1.5 Meg.	0Ω	0Ω	.1Ω	†4KΩ	†13KΩ	39Ω		
V 5	6AU6	1.5 Meg.	0Ω	0Ω	.1Ω	†4KΩ	†13KΩ	39Ω		
V 6	6AU6	.7Ω	0Ω	0Ω	.1Ω	†5.7KΩ	†5.4KΩ	120Ω		
V 7	6BC5	6.8KΩ	220Ω	0Ω	.1Ω	†4KΩ	†5.4KΩ	220Ω		
V 8	6AL5	.6Ω	100KΩ	0Ω	.1Ω	1 Meg.	0Ω	4.3KΩ		
V 9	6AH6	4.3KΩ	0Ω	0Ω	.1Ω	†4.4KΩ	†62KΩ	1KΩ		
V 10	6AU6	1.3 Meg.	0Ω	0Ω	.1Ω	†4KΩ	†5.4KΩ	39Ω		
V 11	6AU6	270KΩ	0Ω	0Ω	.1Ω	†4KΩ	†5.4KΩ	0Ω		
V 12	6T8	100KΩ	100KΩ	200KΩ	.1Ω	0Ω	2 Meg.	0Ω	10 Meg.	†330KΩ
V 13	6AL7GT	3.3KΩ	.1Ω	†3KΩ	1.5 Meg.	0Ω	0Ω	0Ω	3.3KΩ	
V 14	6AQ5	470KΩ	270Ω	.1Ω	0Ω	†5.4KΩ	†5KΩ	470KΩ		
V 15	6BA6	2Ω	0Ω	0Ω	.1Ω	†4KΩ	†5.4KΩ	340Ω		
V 16	6AL5	1KΩ 5KΩ	1KΩ 5KΩ	0Ω	.1Ω	20KΩ 25KΩ	0Ω	975KΩ		
V 17	6AU6	1.2 Meg.	0Ω	0Ω	.1Ω	†30KΩ	†8KΩ	0Ω		
V 18	6SN7GT	390KΩ 1.4 Meg.	▲1 Meg. ▲5 Meg.	600Ω	1.2 Meg.	†12KΩ	430Ω	.1Ω	0Ω	
V 19	6SN7GT	2.2 Meg.	▲5.5KΩ	2.5KΩ 1KΩ	2.2 Meg.	▲5.5KΩ	2.5KΩ 1KΩ	0Ω	.1Ω	
V 20	6SN7GT	900KΩ	▲185KΩ	300KΩ	250KΩ	▲65KΩ	430Ω	.1Ω	0Ω	
V 21	6BG6G	Inf.	0Ω	430Ω	Inf.	1 Meg.	1 Meg.	.1Ω	▲25KΩ	TOP CAP ▲80Ω
V 22	6W4GT	Inf.	Inf.	180KΩ	Inf.	†85Ω	Inf.	▲.4Ω	▲0Ω	
V 23	1X2	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ▲40Ω
V 24	1X2	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP Inf.
V 25	5U4G	Inf.	10KΩ	Inf.	460Ω	Inf.	460Ω	Inf.	10KΩ	
V 26	17AP4	0Ω	1 Meg.	PIN 10 †85Ω	PIN 11 70KΩ	PIN 12 .1Ω				

SELECTOR SWITCH IN TV POSITION
LOCAL-DISTANT SWITCH IN "LOCAL"
HORIZ. SIZE SWITCH IN POSITION 3
† MEASURED FROM PIN 8 OF V25
▲ MEASURED FROM PIN 3 OF V22

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT

Turn the horizontal locking range trimmer (B4) fully clockwise. Turn the horizontal waveform slug (B5) fully counter-clockwise, and then four turns clockwise.

Turn the horizontal hold control fully clockwise and the horizontal frequency slug (B6) until the picture synchronizes horizontally.

Connect the vertical input lead of an oscilloscope to terminal "C" of L38. The patter on the scope should be similar to figure 11. Adjust B5 until the broad and narrow peaks of the waveform are of equal height. If necessary adjust the hold control to keep the picture in "sync" while adjusting B5.

Remove the oscilloscope and with the hold control at maximum clockwise, adjust B6 until the picture is phased as far as possible to the right without instability or "geartooth" effect. Some blanking must appear in the picture.

Check to see that the picture will remain in "sync" with the hold control at maximum counter -clockwise.

Momentarily remove the signal by tuning to another channel and back again. The picture should be out of "sync" and show 4 or 5 bars sloping downward to the right.

If less than 4 bars are present, turn B5 slightly counter-clockwise. If more than 5 bars are present turn B5 slightly clockwise.

Momentarily remove the signal and recheck the number of sloping bars present just before the picture pulls into sync. Repeat this procedure until 4 or 5 bars are present at the pull in point.

Turn the hold control fully clockwise. The picture should be out of "sync" and show one vertical or diagonal bar in the picture. Retouch B6 until this condition exists.

HORIZONTAL DRIVE, SIZE, AND LINEARITY ADJUSTMENTS

Adjust the horizontal drive trimmer (B1) clockwise as far as possible without crowding the right half of the picture.

Turn the horizontal size switch to position 1, (counter-clockwise), and adjust the horizontal size slug (B2) until the picture fills the mask horizontally. If proper width cannot be obtained, turn the size switch to position 2 or 3. When the switch is in position 3 the horizontal size coil is removed from the circuit.

Adjust the horizontal linearity slug (B3) until the picture is symmetrical from left to right. Slight readjustment of B1 may be necessary for best linearity.

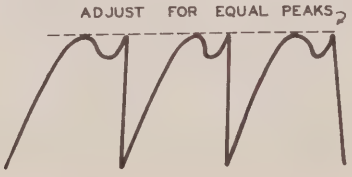
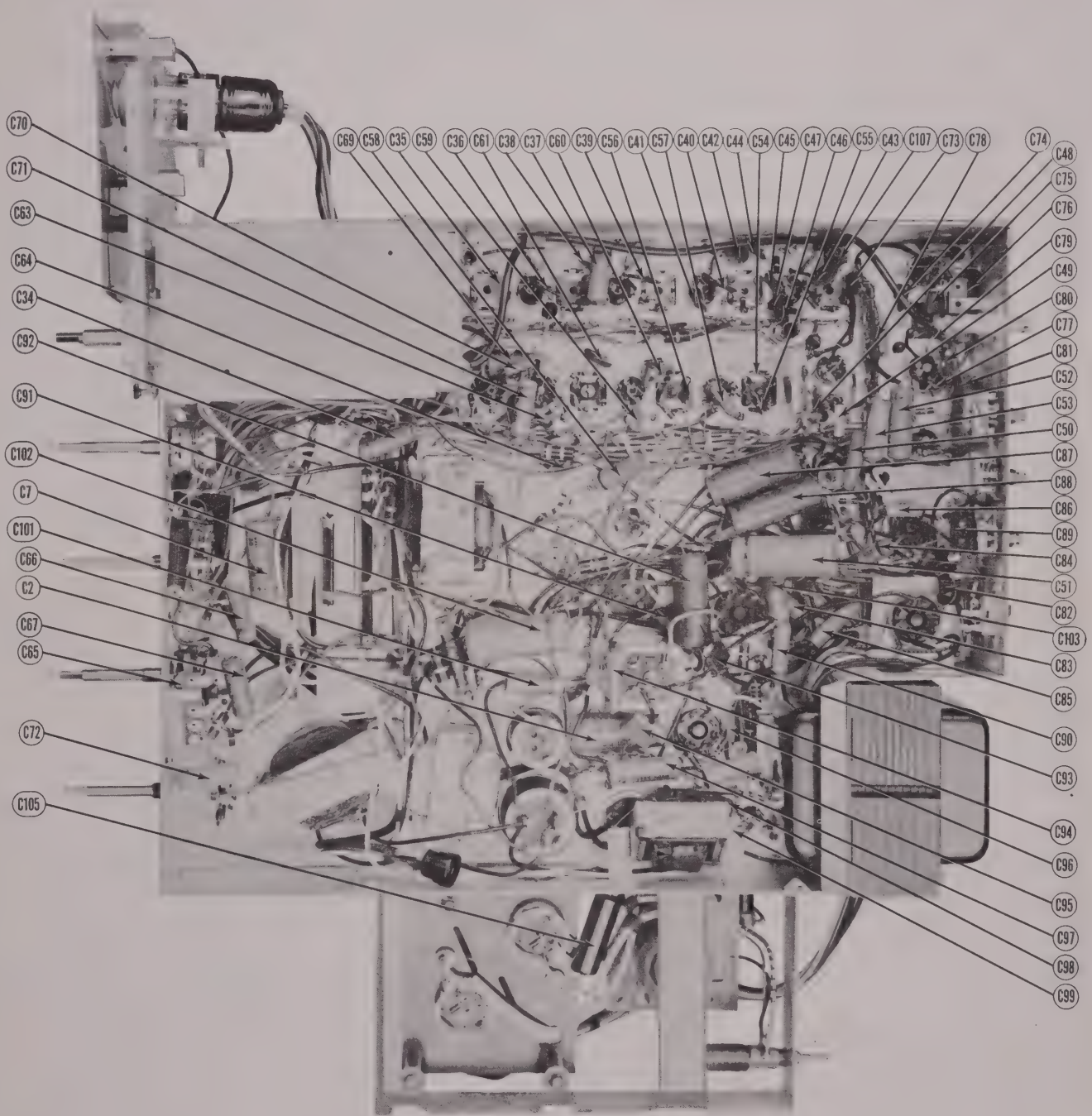
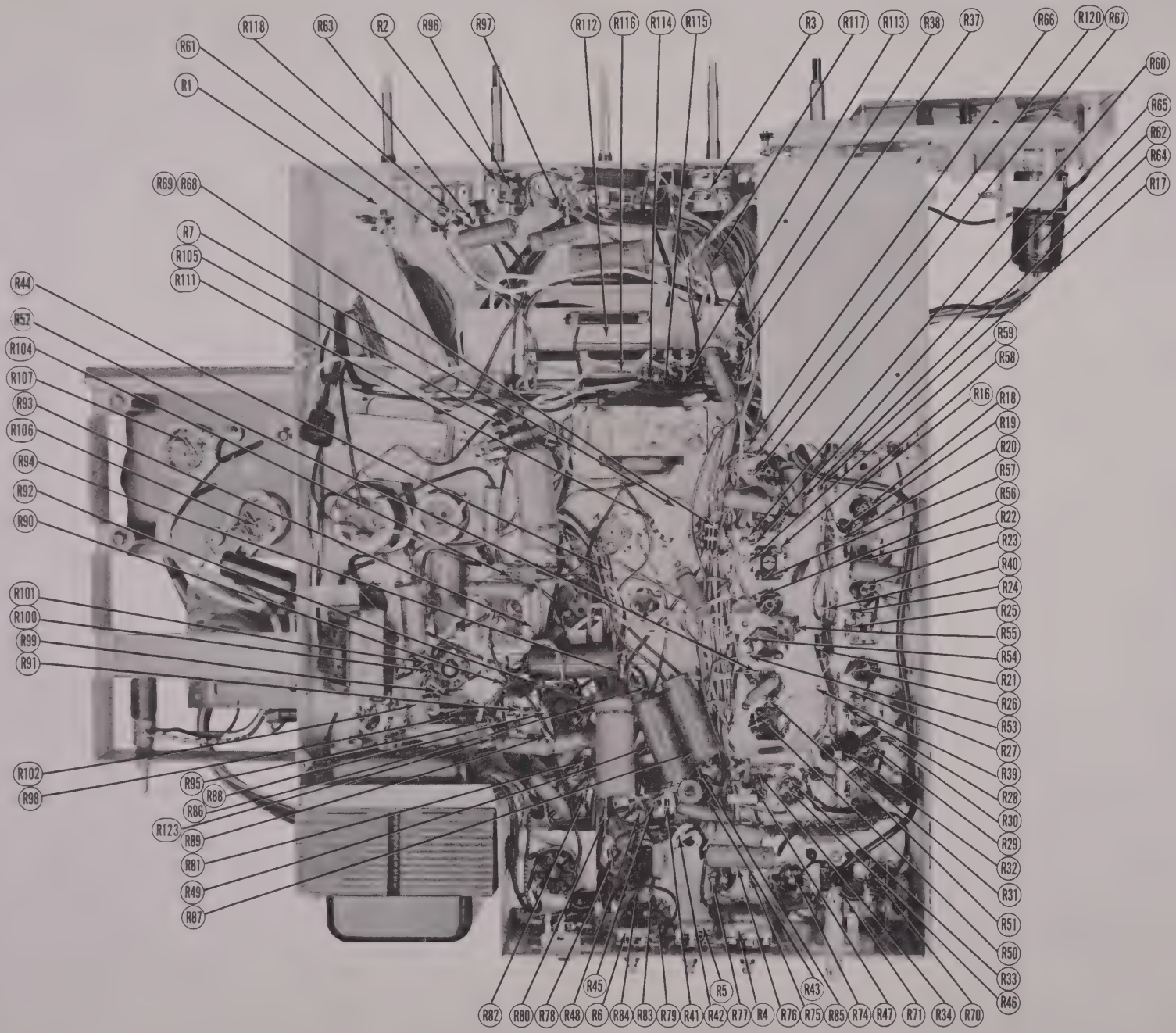


FIG. 11



CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION

CHASSIS BOTTOM VIEW–RESISTOR IDENTIFICATION



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		DUMONT PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	25000190	6J6	7BK	
V2	Mixer	25000180	6AK5	7BD	
V3	Oscillator	25001760	6AB4	5CE	
V4A	1st Video IF Amp.	25000050	6AU6	7BK	
B	1st Video IF Amp.	25000240	6BA6	7BK	Used In Later Models
V5	2nd Video IF Amp.	25000050	6AU6	7BK	
V6A	3rd Video IF Amp.	25000050	6AU6	7BK	
B	3rd Video IF Amp.	25000240	6BA6	7BK	Used In Later Models
V7	4th Video IF Amp.	25002020	6BC5	7BD	
V8	Video Det.-DC Restorer	25000020	6AL5	6BT	
V9	Video Amp.	25001510	6AH6	7BK	
V10	1st Sound IF Amp.	25000050	6AU6	7BK	
V11	2nd Sound IF Amp.	25000050	6AU6	7BK	
V12	Discr.-AF Amp.	25001820	6T8	6R	
V13	Tuning Ind.	25000200	6AL7GT	8CH	
V14A	Audio Output	25000340	6AQ5	7BZ	
B	Audio Output		6AC7	8N	
V15	Narrow Band Sync. Amplifier	25000240	6BA6	7BK	
V16	AGC Rect.-Sync. Amplifier	25000020	6AL5	6BT	
V17	1st Sync. Clipper	25000050	6AU6	7BK	
V18	2nd Sync. Clipper-Vert. Oscillator	25000110	6SN7GT	8BD	
V19	Vert. Amplifier	25000110	6SN7GT	8BD	
V20	Hor. AFC-Hor. Osc.	25000110	6SN7GT	8BD	
V21	Horizontal Output	25000140	6BG6G	5BT	
V22	Damper	25000830	6W4GT	4CG	
V23	HV Rectifier	25001810	1X2	7CB	
V24	HV Rectifier	25001810	1X2	7CB	
V25	LV Rectifier	25000060	5U4G	5T	
V26A	Picture Tube	25002610	17AP4	12D	
B	Picture Tube	19AP4	19AP4	12D	
C	Picture Tube	19AP4A	19AP4A	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	DUMONT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	450	03014130	AFH88J		UP4445		TVL-2764	▲ Filter
B	40	450							▲ Filter
C2	50	150	03018430	PRS250/40		BR5015A		TVA-1414	Filter
C3A	30	450	03018450	AFH8422J		UPT315T45		TVL-4766	▲ Filter
B	10	450							■ V. Amp. Screen
C	10	450							▲ Output Decoupling
D	10	250							Decoupling
C4A	10	450	03018440	AF2J2H2F		UP11145		TVL-3776	■ Filter
B	10	350							▲ Filter
C	10	250							Filter
C5	30	450	03019570	AFH6J		UP3045		TVL-1720	Decoupling
C6A	30	450	03019400	AFH6J53		UP3045		TVL-1720	■ Decoupling
B	25	50				BR255A		TVA-1306	▲ Vert. Amp. Cath.
C7	10	450	03019410	PRS500/10		BR1045A		TVA-1705	Decoupling
C8	10	25	03016730	PRS25/10		BR102A		TVA-1204	Output Cathode *
C9	20		03015790	SI20NPO	TCZ-20		NPOK-20		Fixed Trimmer
C10	20		03015790	SI20NPO	TCZ-20		NPOK-20		Fixed Trimmer
C11	470		03016470	SI470	D6-471		GP2K-470	19C15	RF Amp. Cathode
C12	470		03016470	SI470	D6-471		GP2K-470	19C15	AGC Filter
C13	470		03016470	SI470	D6-471		GP2K-470	19C15	AGC Filter
C14	100		03016700	SI100	D6-101		GP1K-100	19C11	RF Coupling
C15	100		03016700	SI100	D6-101		GP1K-100	19C11	Fixed Trimmer
C16	125		03018020						Fixed Trimmer
C17	.5-5		03016650				532-08-.5-5		Variable Trimmer
C18	.5-5		03016650				532-08-.5-5		Variable Trimmer
C19	100		03016700	SI100	D6-101		GP1K-100	19C11	RF Coupling
C20	5000		03015610	BPD-005	DD-502		811-005	29C1	Mixer Screen
C21	470		03016470	SI470	D6-471		GP2K-470	19C15	AGC Filter
C22	470		03016470	SI470	D6-471		GP2K-470	19C15	RF Bypass
C23	5000		03015610	BPD-005	DD-502		811-005	29C1	RF Bypass
C24	470		03016470	SI470	D6-471		GP2K-470	19C15	Mixer Fil. Bypass
C25	1		03012150		TCZ-1				Osc. Coupling
C26	470		03016470	SI470	D6-471		GP2K-470	19C15	AGC Filter
C27	5		03014730	SI5NPO	TCZ-4.7		NPOK-5		Osc. Grid Cap
C28	470		03016470	SI470	D6-471		GP2K-470	19C15	Osc. Fil. Bypass
C29	470		03016470	SI470	D6-471		GP2K-470	19C15	Filament Bypass
C30	470		03016470	SI470	D6-471		GP2K-470	19C15	Filament Bypass
C31	15		03012050		TCZ-15		NPOK-15	19C5	Fixed Trimmer
C32	8-50		03017500				557-N750-8-50		Variable Trimmer
C33	1.5-7		03016870				TS2A-N300 -1.5-7		Variable Trimmer
C34	.05	200	03000950	P288-05	DF-503	PTE4S5		2TM-S5	AGC Filter
C35	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C36A	4000		03017790	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	1st V. IF Plate Dec.
B	4000					1D5D4			1st V. IF Screen
C37	.05	200	03000950	P288-05	DF-503	PTE4S5		2TM-S5	AGC Filter
C38	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C39A	4000		03017790	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	2nd V. IF Plate Dec.
B	4000					1D5D4			2nd V. IF Screen
C40A	4000		03017790	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	3rd V. IF Plate Dec.
B	4000					1D5D4			3rd V. IF Screen
C41	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	3rd V. IF Cathode
C42	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	3rd C. IF Fil. *
C43A	4000		03017790	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	4th V. IF Plate Dec.
B	4000					1D5D4			4th V. IF Screen
C44	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	4th V. IF Cathode
C45	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	IF Coupling
C46	20	500	03055000		TCZ-20	5R5Q2	NPOK-20	MS-42	Fixed Trimmer
C47	100	500	03055170	1469-0001	TCZ-100	5R5T1	NPOM-100	MS-31	Fixed Trimmer
C48	5	500	03055500	1468-000005	TCZ-4.7	5W5V5	GP1K-5	MS-55	V. Diode Filter

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA DUMONT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C49	47		03012730	SI50NPO	TCZ-47	5R5Q5	NPOM-50	29C14	Fixed Trimmer
C50	.005	600	03001570	P688-005	D6-502	PTE6D5	811-005	6TM-D5	V. Amp. Cathode
C51	5	400	03014260	684-5		GT4P5		4TM-P5	Video Coupling
C52	.05	600	03015370	P688-05	DF-503	PTE6S5		6TM-S5	Video Coupling
C53	.05	200	03000950	P288-05	DF-503	PTE4S5		3TM-S5	Pic. Tube Grid
C54	2.5		03016897						S. IF Coupling
C55	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	lst S. IF Grid
C56	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	lst S IF Plate Dec.
C57	1000	500	03033180	1467-001	D6-102	1W5D1	GP2L-001	1FM-21	lst S. IF Screen
C58	.05	200	03000950	P288-05	DF-503	PTE4S5		3TM-S5	RF Bypass
C59	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	S. IF Coupling
C60	10	500		1468-00001	D6-100	5W5Q1	GP1K-10	MS-41	S. IF Coupling
C61A	4000		03017790	BPD-2X004	DD-2-502	1D5D4	822-2X004	36C2	2nd S. IF Screen Dec.
B	4000					1D5D4			2nd S. IF Screen
C62	.68		03016895		TCZ-.68				Balancing *
C63	47	500	03020080	1468-00005	D6-470	5W5Q5	GP1K-47	1FM-45	Diode Load Cap
C64	680	500	03020210	SI680	D6-681	1W5T7	GP2K-680	1FM-37	De-emphasis
C65	.01	600	03014900	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Audio Coupling
C66	.005	600	03001570	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling †
C67	.03	200	03000020	P688-03		PTE6S3		6TM-S3	Tone Comp.
C68	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	Discr. AF Amp. Fil.*
C69	.01	600	03002560	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Audio Coupling
C70	27	500	03020360	1468-000025	D6-270	5W5Q3	GP1K-27	MS-43	AF Feedback
C71	.005	600	03001570	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate Bypass
C72	.05	200	03000950	P288-05	DF-503	PTE4S5		3TM-S5	Tuning Ind. Filter
C73	20	500	03055900	1469-000025	TCZ-20	5R5Q2	NPOK-20	MS-42	Sync. Coupling Note 1
C74	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	Sync. Amp. Plate Dec.
C75	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	Sync. Amp. Plate Dec.
C76	.05	200	03000950	P288-05	DF-503	PTE4S5		2TM-S5	Sync. Amp. Cathode
C77	150	500	03020140	1468-00015	D6-151	5W5T15	GP1K-150	1FM-15	AGC Filter †
C78	1000	500	03015810	1468-001	D6-102	1W5D1	GP2L-001	1FM-21	AGC Filter
C79	5000		03015810	BPD-005	DD-502	1D5D5	811-005	29C1	Decoupling
C80	33	1000	03020060	SI33	D6-330		GP1K-33	19C24	Sync. Det. Filter
C81	.1	200	03014780	P288-1	DF-104	PTE4P1		2TM-P1	Sync. Coupling
C82	.1	400	03014770	P488-1	DF-104	PTE4P1		4TM-P1	Sync. Coupling
C83	.002	600	03014430	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Integrator Net.
C84	.005	600	03018540	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Integrator Net.
C85	.03	200	03018470	P488-02	DF-203	PTE4S2		2TM-S2	Integrator Net
C86	10000	500	03101540	1467-01	D6-103	1D5D1	811-01	1FM-11	Vert. Osc. Grid
C87	.1	600	03014820	P688-1		PTE6P1		6TM-P1	Vert. Discharge
C88	.1	600	03014820	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C89	180	500	03021430	1469-0002	D6-181	5R5T2	GP2K-181	MS-32	Hor. Sync. Coupling
C90	.002	600	03014430	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Hor. Sync. Coupling
C91	.02	400	03018350	P488-01	DF-203	PTE4S2		4TM-S2	AFC Filter
C92	.2	400	03018330	P488-22		GT4P2		4TM-P22	AFC Filter
C93	270	500	03021470	1469-0003	D6-271	5R5T3	GP2K-270	MS-33	Hor. Osc. Grid
C94	.01	400	03018540	P488-01		PTE4S1		4TM-S1	Fixed Trimmer
C95	1000	500	03033180	1464-001		1R5D1		MS-21	Hor. Discharge
C96	270	500	03020170	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	Hor. Sweep Coupling
C97	.05	600	03015370	P688-05	DF-503	PTE6S5		6TM-S5	Hor. Output Screen
C98	.03	200	03100340	P688-03		PTE6S3		6TM-S3	Damper Filter
C99	.1	200	03100360	P288-1		PTE4P1		2TM-P1	Damper Filter
C100	1000	500	03029240	1464-001		1R5D1		MS-21	Fixed Trimmer
C101	.02	600	03015550	P688-02	DF-203	PTE6S2		6TM-S2	Hor. Sweep Coupling
C102	.5	400	03014260	484-5		GT4P5		4TM-P5	Hor. Sweep Coupling
C103	.05	400	03019640	P488-05	DF-503	PTE4S5		4TM-S5	Hor. AFC Plate
C104	.00047	10000	03017450	P10888-0005		PTE100T5		TVM-351	Voltage Doubler Cap
C105	.00047	10000	03017450	P10888-0005		PTE100T5		TVM-351	H.V.Filter
C106	.00047	10000	03017450	P10888-0005		PTE100T5		TVM-351	H.V. Filter
C107	5000		03015610	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass §
C108	.02	600	03018570	P688-02	DF-203	PTE6S2		6TM-S2	Line Filter ♦
C109	.02	600	03018570	P688-02	DF-203	PTE6S2		6TM-S2	Line Filter ♦

* Not Used In All Models.
† Some Models Use .01MFD. In This Application.
¶ Change To .05MFD (Mfgrs. Part No. 03000950) In Model RA-112A After Serial No. 1214676 And Model RA-113 After Serial No. 1312685.
§ Used In Model RA-112A After Serial No. 125274 And RA-113 After Serial No. 134415.
¤ Used In Model RA-112A After Serial No. 1213901 And RA-113 After Serial No. 1311795.
Note 1. Model 112A Starting With Serial No. 1213684 And RA-113 Starting With Serial No. 1314090 Use 47MMF. In This Application. Mfgr's. Part No. 03012730.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1	1200	25	01028300	Concentrikit	RTV-220		Focus control - wire wound
R2A	50KΩ	½	01028210	B11-133 *	RTV-219	SBB-560-S	Horiz. hold control - panel
B	1Meg	½		B13-137X *			Volume control - rear - tap@ 300KΩ
C	Shaft End			E-202 *			Attach per instructions in concentrikit
D	Switch			78-1 *			Attach per instructions in concentrikit
R3A	100KΩ	½	01027020	Concentrikit B11-128		SBB-599	Brightness control *
B	1000	½		B11-108			Contrast control - rear
C	Shaft End			E-202			Attach per instructions in concentrikit
R4	1500Ω	2	01024620		RTV-22	VK-130	Vert. linearity control - wire wound
R5A	1Meg	½	01007520	Q11-137	AG-61-S	AN-89	Vert. hold control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R5A per instructions
R6A	4Meg	½	01008570	Q11-141	AG-85-S	AN-86	Vert. size control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R6A per instructions
R7A	25KΩ	½	01007540	Q11-120	AG-40-S	AN-26	AGC control
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R7A per instructions

* Additional Parts To Be Used With "Concentrikit."

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHER WISE STATED
R8	[illegible]	½	02031 640	BTS-[illegible]	RF Amp. Cathode
R9	[illegible]	½	02032010	BTS-100K	AGC Network
R10	10KΩ	2	02037890		RF Amp. Plate

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	IDENTIFICATION CODES
R11	1Meg	½	02032130		Mixer Grid
R12	100KΩ	½	02032010	BTS-100K	AGC Network
R13	150KΩ	½	02032030		Mixer Screen
R14	12KΩ	½	02031900		Osc. Grid
R15	10KΩ	1	02037890		Osc. Plate
R16	2700Ω 20%	½	02030580	BTS-2700	lst Video IF Amp. Grid
R17	10KΩ	½	02032480	BTS-10K	AGC Network
R18	39Ω	½	02031600		lst Video IF Amp. Cathode
R19	1000Ω	½	02032420	BTS-1000	lst Cideo IF Amp. Screen See Note 8
R20	1000Ω	½	02032420	BTS-1000	lst Video IF Amp. Plate Decoup.
R21	8200Ω	½	02034880	BTS-8200	Voltage Divider
R22	10KΩ	½	02032480	BTS-10K	AGC Network
R23	39Ω	½	02031600		2nd Video IF Amp. Cathode See Note - 9
R24	1000Ω	½	02032420	BTS-1000	2nd Video IF Amp. Screen
R25	1000Ω	½	02032420	BTS-1000	2nd Video IF Amp. Plate Decoup.
R26	120Ω	½	02031660	BTS-120	3rd Video IF Amp. Cathode See Note 10
R27	1000Ω	½	02032420	BTS-1000	3rd Video IF Amp. Screen See Note 8
R28	1000Ω	½	02032420	BTS-1000	3rd Video IF Amp. Plate Decoup.
R29	6800Ω	½	02032680	BTS-6800	4th Video IF Amp. Grid
R30	220Ω	½	02031690	BTS-220	4th Video IF Amp. Cathode
R31	1000Ω	½	02032420	BTS-1000	4th Video IF Amp. Screen
R32	1000Ω	½	02032420	BTS-1000	4th Video IF Amp. Plate Decoup.
R33	10KΩ 5%	½	02032480	BTS-10K-5%	Video Peaking Coil Shunt - See Note 1
R34	43000Ω 20%	½	02030630	BTS-4700	Video Det. Diode Load - See Note 11
R35	1000Ω	½	02032420	BTS-1000	AGC Network
R36	15KΩ	½		BTS-15K	AGC Network - See Note 2
R37	1.2Meg	½		BTS-1.2Meg	AGC Network - See Note 3
R38	10Meg	½	02032680	BTS-10Meg	AGC Network
R39	680KΩ	½	02032590	BTS-680K	AGC Network
R40	1.2Meg	½		BTS-1.2Meg	AGC Network - See Note 3
R41	270KΩ	½	02032060	BTS-270K	AGC Network
R42	2.2Meg	½	02032620	BTS-2.2Meg	AGC Network
R43	22Ω	½	02031570	BW-½-22	Video Amp. Cathode
R44	62KΩ 5%	2	02036910		Video Amp. Screen - See Note 12
R45	4300Ω 5%	2	02036630		Video Amp. Plate - See Note 11
R46	100KΩ	½	02032540	BTS-100K	DC Restorer Diode Load
R47	1Meg	½	02032600	BTS-1Meg	Picture Tube Grid
R48	180KΩ 5%	2	02035040	BTS-180K-5%	Voltage Divider
R49	100KΩ	½	02032540	BTS-100K	Voltage Divider
R50	10K	½	02032480		lst Sound IF Amp. Grid
R51	39Ω	½	02031600		lst Sound IF Amp. Cathode
R52	1000Ω	½	02032420	BTS-1000	lst Sound IF Amp. Screen
R53	1000Ω	½	02032420	BTS-1000	lst Sound IF Amp. Plate Decoup.
R54	1.2Meg	½		BTS-1.2Meg	Voltage Divider - See Note 3
R55	270KΩ	½	02032060		2nd Sound IF Amp. Grid
R56	1000Ω	½	02032420	BTS-1000	2nd Sound IF Amp. Screen
R57	1000Ω	½	02032420	BTS-1000	2nd Sound IF Amp. Plate Decoup.
R58	100KΩ	½	02032540	BTS-100K	Disc.Diode Load
R59	100KΩ	½	02032540	BTS-100K	Disc.Diode Load
R60	100KΩ	½	02032540	BTS-100K	Voltage Divider
R61	1.2Meg	½		BTS-1.2Meg	Indicator Network - See Note 3
R62	3.3Ω	½		BW-½-3.3	Indicator Network
R63	22KΩ	½	02032500	BTS-22K	Tone Compensation
R64	10Meg	½	02032660	BTS-10Meg	AF Amp. Grid
R65	330KΩ	½	02032070	BTS-330K	AF Amp. Plate
R66	470KΩ	½	02032580	BTS-470K	Output Grid
R67	560KΩ	½	02032100	BTS-560K	Output Grid
R68	3900Ω	2	02037840	BTB-3900	Output Decoup. - See Note 13
R69	3900Ω	2	02037840	BTB-3900	Output Decoup. - See Note 1
R70	68Ω	½	02031630	BW-½-68	Sync. Amp. Cathode
R71	270Ω	½	02031700	BTS-270	Sync. Amp. Cathode
R72	1000Ω	½	02032420	BTS-1000	Sync. Amp. Screen
R73	1000Ω	½	02032420	BTS-1000	Sync. Amp. Plate
R74	18KΩ	½	02031920	BTS-18K	Voltage Divider
R75	10KΩ	½	02032480	BTS-10K	Current Limiting
R76	1.2Meg	½		BTS-1.2Meg	lst Sync. Clipper Grid - See Note 3
R77	22KΩ	½	02032500	BTS-22K	lst Sync. Clipper Plate
R78	1.2Meg	½		BTS-1.2Meg	2nd Sync. Clipper Grid - See Note 3
R79	2700Ω	½		BTS-2700	2nd Sync. Clipper Plate - See Note 4
R80	10KΩ	½	02032480	BTS-10K	Integrator
R81	10KΩ	½	02032480	BTS-10K	Integrator
R82	10KΩ	½	02032480	BTS-10K	Integrator
R83	390KΩ	½	02032080	BTS-390K	Vert. Osc. Grid
R84	910KΩ 5%	½	02031190		Vert. Osc. Plate - See Note 14
R85	4700Ω 5%	½	02030640	BTS-4700-5%	Vert. Peaking - See Note 7
R86	2.2Meg	½	02032620	BTS-2.2Meg	Vert. Amp. Grid
R87	560Ω	1	02034740	BTA-560	Vert. Amp. Cathode
R88	2.7Meg 5%	1	02034300	BTS-2.7Meg-5%	Voltage Divider
R89	820KΩ 5%	½	02031180	BTS-820K-5%	Horiz. AFC Grid
R90	150KΩ 5%	½	02031000	BTS-150K-5%	Voltage Divider
R91	100KΩ 5%	1	02033980	BTA-100K-5%	Horiz. Osc. Grid
R92	150KΩ 5%	½	02034000	BTA-150K-5%	Voltage Divider
R93	8200Ω 5%	½	02030700	BTS-8200-5%	Horiz. Osc. Transformer Shunt
R94	8200Ω 5%	½	02030700	BTS-8200-5%	Horiz. AFC Filter
R95	47KΩ	1	02034970	BTA-47K	Horiz. Osc. Load
R96	68KΩ	½	02032530	BTS-68K	Voltage Divider
R97	120KΩ	2		BTS-120K	Voltage Divider - See Note 5
R98	15KΩ	1	02034910	BTA-15K	Voltage Divider
R99	47Ω	½			Parasitic Supp. - See Note 6
R100	1Meg	½	02032600	BTS-1Meg	Horiz. Output Grid
R101	100Ω	½	02032360		Parasitic Supp.
R102	25KΩ	5	02109380	1 3/4A-25000	Horiz. Output Screen - Wire Wound
R103	88Ω	1			Parasitic Supp.
R104	5000Ω	5	02112340	1 3/4A-5000	Vert. Amp. Plate - Wire Wound
R105	1500Ω	2	02037790	BTB-1500	Width Network Coil Shunt
R106	2.2Ω	½	03018340		HV Rectifier Filament
R107	2.2Ω	½	02100730		HV Rectifier Filament
R108	470KΩ	2	03017450		Voltage Divider
R109	470KΩ	2	03017450		Voltage Divider
R110	470KΩ	2	03017450		Voltage Divider
R111	15KΩ	½	02032490	BTS-15K	Voltage Divider
R112	427Ω	10	02120210		Bias Network - Wire Wound
R113	2400Ω 5%	2	02036570		Voltage Divider
R114	3300Ω 5%	½	02036600	BTS-3300-5%	Voltage Divider
R115	3300Ω 5%	½	02036600	BTS-3300-5%	Voltage Divider
R116A	2140Ω	10	02120300		Voltage Divider - Wire Wound
B	1480Ω	10			Voltage Divider - Wire Wound

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	IDENTIFICATION CODES
R117	1650Ω	11	02122900		Voltage Divider - Wire Wound
R118	100KΩ	1	02035010	BTA-100K	Isolation
R119	12K	½			Mixer Coil Shunt
R120	270Ω	½	02031700	BTS-270	Output Cathode
R121	100KΩ 20%	½	02032540		2nd Sound IF Transformer Shunt-See Note 1
R122	47KΩ 20%	½	02032520		1st Sound IF Transformer Shunt-See Note 1
R123	150KΩ 5%	½	02031000	BTS-150K-5%	Horizontal AFC Filter

Note 1. Not Used In All Models.
Note 2. Some Models Use 22KΩ Resistor In This Application.
Note 3. Some Models Use 1Meg Resistor In This Application.
Note 4. Some Models Use 3300Ω Resistor In This Application.
Note 5. Some Models Use 100KΩ Resistor In This Application.
Note 6. Some Models Use 100Ω Resistor In This Application.
Note 7. Some Models Use 5100Ω Resistor In This Application.
Note 8. Some Models Use 10KΩ Resistor In This Application.
Note 9. Some Models Use 120Ω Resistor In This Application.
Note 10. Some Models Use 68Ω Resistor In This Application.
Note 11. Some Models Use 39000 Resistor In This Application.
Note 12. Some Models Use 68KΩ Resistor In This Application.
Note 13. Some Models Use 1000Ω Resistor In This Application.
Note 14. Some Models Use 1Watt Resistor In This Application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA DUMONT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	760VCT	5VAC	6.3VAC	20004771	P-6315		
	@2.01A	@ .260A	@ 3A	@ 7.4A				

TRANSFORMER (FILAMENT)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA DUMONT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T2	117VAC	6.3VAC			20005011	P-6134 ①	P-3074	
	@ .51A	@ 1.18A						

① Drill one new mounting hole.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC	REPLACEMENT DATA DUMONT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T3	160Ω	1330Ω	20004721	A-8122	A-4000 ①	TBO-2	Vert. Osc. Trans.
T4	35Ω	SEC. 1 & 2	20005021				Horiz. Output Trans.
	Tapped @ 7Ω	0Ω					
		SEC. 3					
		1.2Ω					
		SEC. 4					
		9Ω					
T5	500Ω	6.2Ω	20005031	A-8112 ①	A-3035 ①		Vert. Output Trans.
T6A	13Ω		21006091	DY-7			Horiz. Deflection Coil
B	36Ω						Vert. Deflection Coil
T7	900Ω		21005342				Focus Coil

① Drill One New Mtg. Hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA DUMONT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T8	6500Ω	4.2Ω	400Ω	.5Ω	18002791	A-3850 ①	A-3020 ①	RO-201 ①	① Drill One New Mtg. Hole.

SPEAKER

ITEM No.	RATINGS FIELD. RES.	RATINGS V. C. IMP.	REPLACEMENT DATA DUMONT PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	PM	4.2Ω	18002791	ST-119 ② ③ Model P10-T	10A4A ③	② Replace Output Trans. To Match 6-8Ω Voice Coil. ③ Remount Output Trans.
	CONE DIA.	V. C. DIA.				
SP2	9½ "	1"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA DUMONT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.260A	15Ω		21005432	C-2326 ①	C-2974 ①		
L2	.260A	68Ω		21005213	C-2326 ①	C-2991 ①	TR-3300	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA DUMONT PART No.	MEISSNER PART No.	NOTES
L3	Ant. Trans.	0Ω	0Ω	20004592		
L4	Ant. Loading Coil	.5Ω		21005801		
L5	Ant. Coil	0Ω				Part Of Inputuner Part No. 89003902

PARTS LIST AND DESCRIPTIONS (Continued)

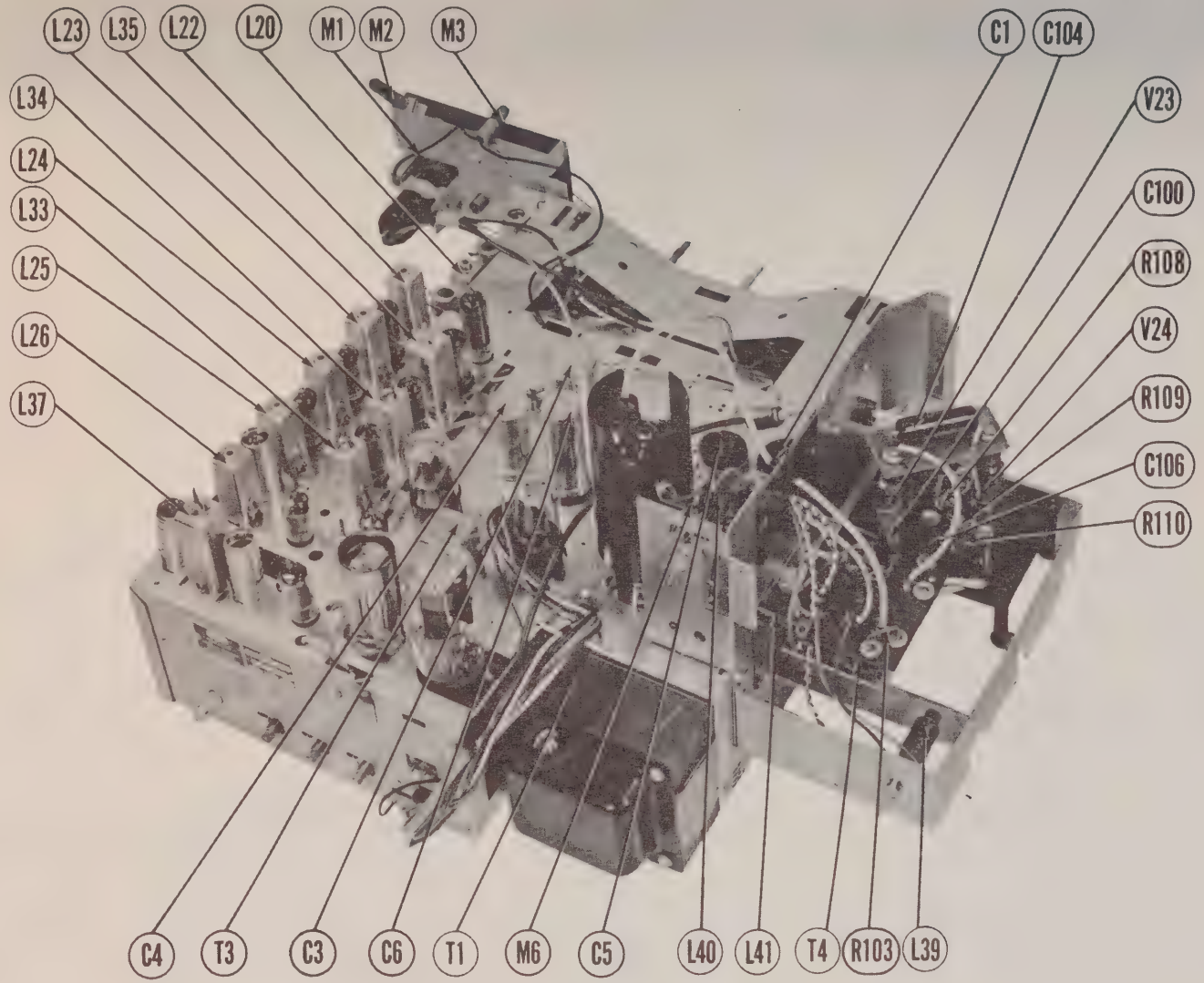
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	DUMONT PART No.	MEISSNER PART No.	
L6	Ant. End Inductor	0Ω		21005721		
L7	RF Choke	.5Ω		21005741		
L8	Fil. Choke	0Ω		21005421		
L9	RF End Inductor	0Ω		21005722		
L10	RF Coil	0Ω				Part Of Inputuner Part No. 89003902
L11	Bandpass Coil	0Ω		21005731		
L12	Mixer Grid End Inductor	0Ω		21005722		
L13	Mixer Grid Coil	0Ω				Part Of Inputuner Part No. 89003902
L14	Bandpass Coil	0Ω		21005521		Not Used In All Models
L15	RF Choke	0Ω		21005421		
L16	Osc. Shunt Coil	0Ω		21005131		
L17	Osc. Coil	0Ω				Part Of Inputuner Part No. 89003902
L18	Osc. End Inductor	0Ω		21005111		
L19	Fil. Choke	0Ω		21005421		
L20	Conv. Trans.	47KΩ	.1Ω	21005911		
L21A	1st Video IF Coupling	.1Ω		21006781		
B	1st Video IF Coupling			21005902		
C	1st Video IF Coupling			21005901		
L22	1st Video IF	Inf.		21005211		
L23	2nd Video IF	.7Ω	.7Ω	20004711		Some Models Reverse L23 And L24 Change Identified By "L" On Rear Of Chassis
L24	3rd Video IF	.7Ω	.7Ω	20004741		
L25	4th Video IF	.5Ω	.5Ω	20004751		
L26	Sound Trap	.1Ω		21004802		
L27	5th Video IF	.9Ω	.6Ω	20005241		
L28	Peaking	2Ω		21004465		Not Used In All Models
L29A	Peaking	8.5Ω		21004463		White Dot
B	Peaking			21006624		Orange Dot Some Models Use Red Dot. Change Identified By "L" Or "N" On Rear Of Chassis.
L30A	Peaking	12Ω		21006629		Yellow Dot
B	Peaking			21004461		
C	Peaking			21006627		
L31	4.5MC Trap	2.9Ω		21004831		Black And Brown Dots
L32A	Peaking	12Ω		21004467		Yellow Dot
B	Peaking			21006627		Blue Dot
L33	1st Sound IF	.2Ω	.2Ω	20004511		
L34	2nd Sound IF	.2Ω	.2Ω	20004511		
L35	Disc.Trans.	.2Ω	.3Ω	20005271		
L36	RF Choke	2Ω		21004465		Orange Dot
L37	Sync. Det. Trans.	.2Ω	.1Ω	20005251		
L38	Horiz. Osc. Coil	80Ω	50Ω	20004611		
L39	Horiz. Lin.	3.2Ω		21005491		
L40	Horiz. Size	8.6Ω		21005821		
L41	Horiz. Size	5Ω		21005811		
L42	Horiz. Size Network Coil	3.7Ω		21006111		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					DUMONT PART No.		
M1	Bayonet	6-8	.15	Brown	12001310		Type No.47
M2	Bayonet	6-8	.15	Brown	12001310		Type No.47
M3	Bayonet	6-8	.15	Brown	12001310		Type No.47

MISCELLANEOUS

ITEM No.	PART NAME	DUMONT PART No.	NOTES
M4A	Inputuner	89003902	
B	Inputuner	89003911	
M5	Fuse	11001100	.25A 250 Type BEL
M6	Switch	05003431	Horiz. Size
M7	Switch	05004002	Function (FM-TV-Phono)
M8A	Switch	05003690	Local - Distant Reception
B	Switch	05003050	Local-Distant Reception
M9A	Ion Trap	21004473	
B	Ion Trap	21004853	
B6, B1	Trimmer	03018340	Horiz. Freq. 10-160MMF, Horiz. Drive 40-250 MMF
	Safety Glass	45000049	Model RA113
	Safety Glass	45001461	Model RA 112A
	Glass	45002491	Tuning Dial
	Bezel	64003221	Dial
	Knob	45001921	Main Dial Mahogany
	Knob	45001922	Main Dial Blonde
	Knob	45001881	Vernier Mahogany
	Knob	45001882	Vernier Blonde



CHASSIS-TOP VIEW

PHOTOFACT* Folder

*TRADE MARK

RTMA MEMBER RADIO-TELEVISION MANUFACTURERS ASSOCIATION

EMERSON MODELS
629B, 629C (CH.120120), 651B (CH.120120)

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MODEL 651B

EMERSON MODELS
629B, 629C (CH.120120), 651B (CH.120120)

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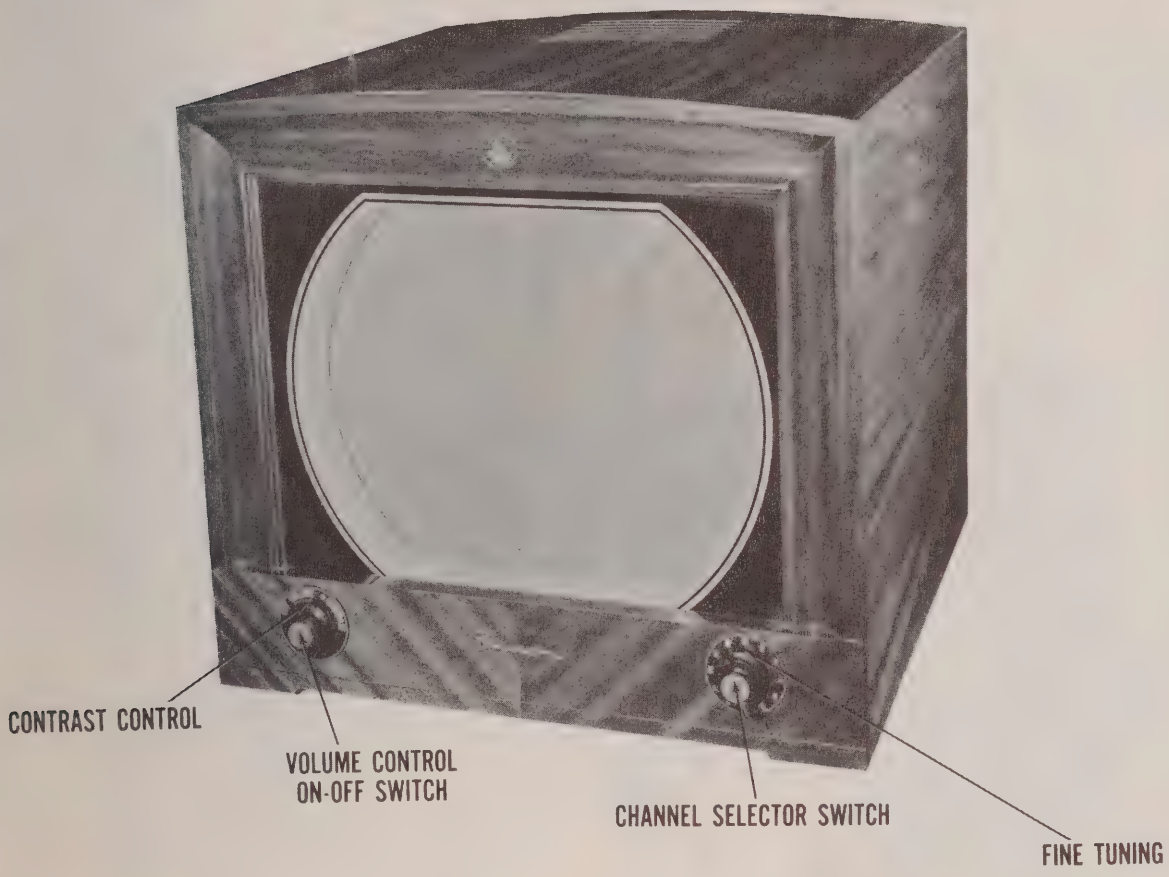

EMERSON
MODELS 629B, 629C, 651B (Ch. 120120)

EMERSON MODEL 651B

TRADE NAME	Emerson, Models 629B, 629C, 651B (Ch. 120120)
MANUFACTURER	Emerson Radio And Phonograph Corp., 111 8th Ave., New York 11, New York
TYPE SET	Television Receiver
TUBES	Twenty-Six
POWER SUPPLY	110-120 Volts AC 60 Cycle
RATING	2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 Thru 13

INDEX

Alignment Instructions 6, 7
Horizontal Sweep Circuit Adjustments 11
Parts List And Description 12, 13, 14
Photographs
Cabinet - Rear View 11
Capacitor And Alignment Identification 4, 9
Chassis - Top View 3
Photographs (Continued)
RF Tuner 10
Resistor And Inductor Identification 15, 16
Schematic 2
Tube Placement Chart 5
Voltage And Resistance Measurements 8

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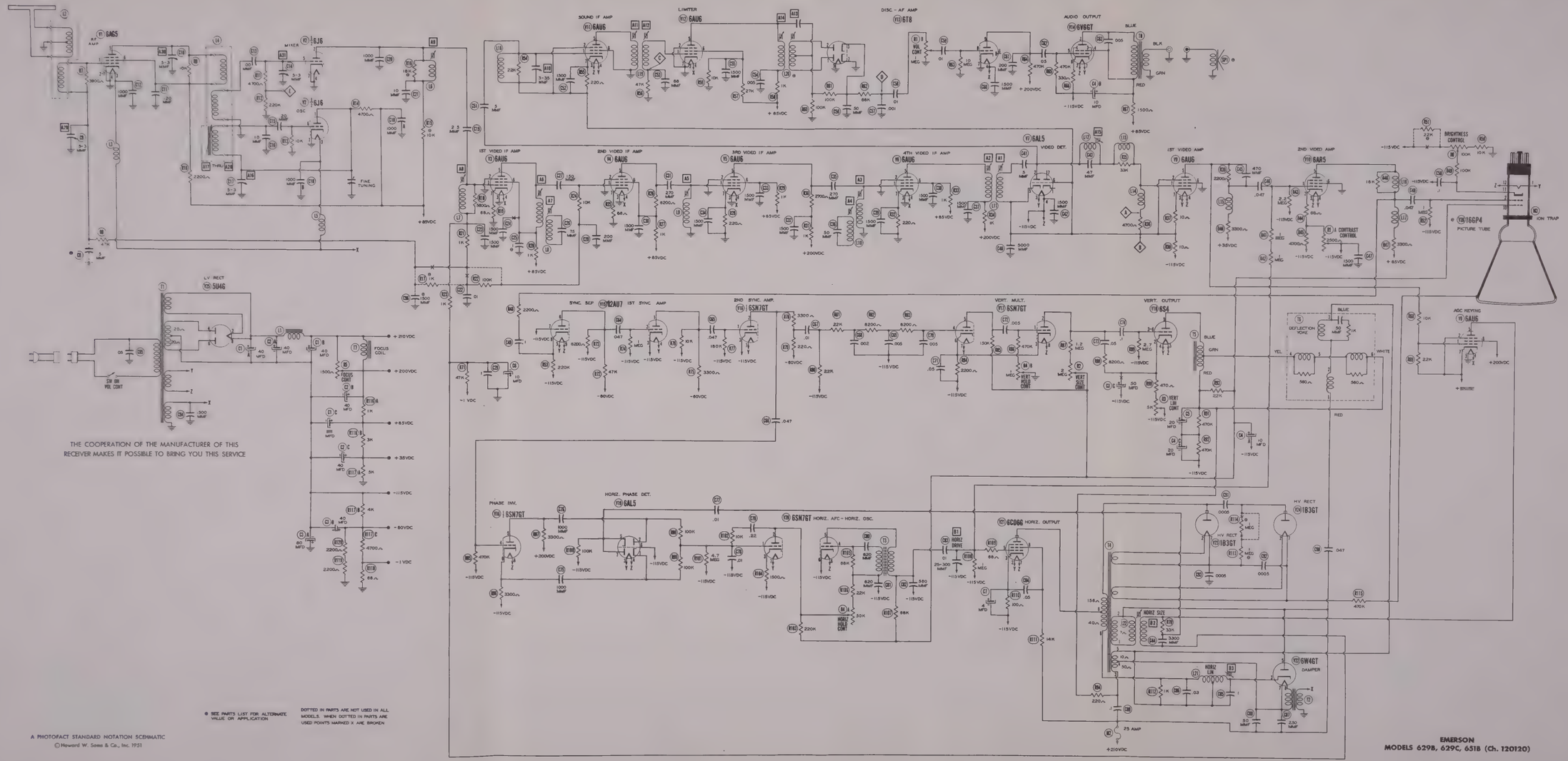

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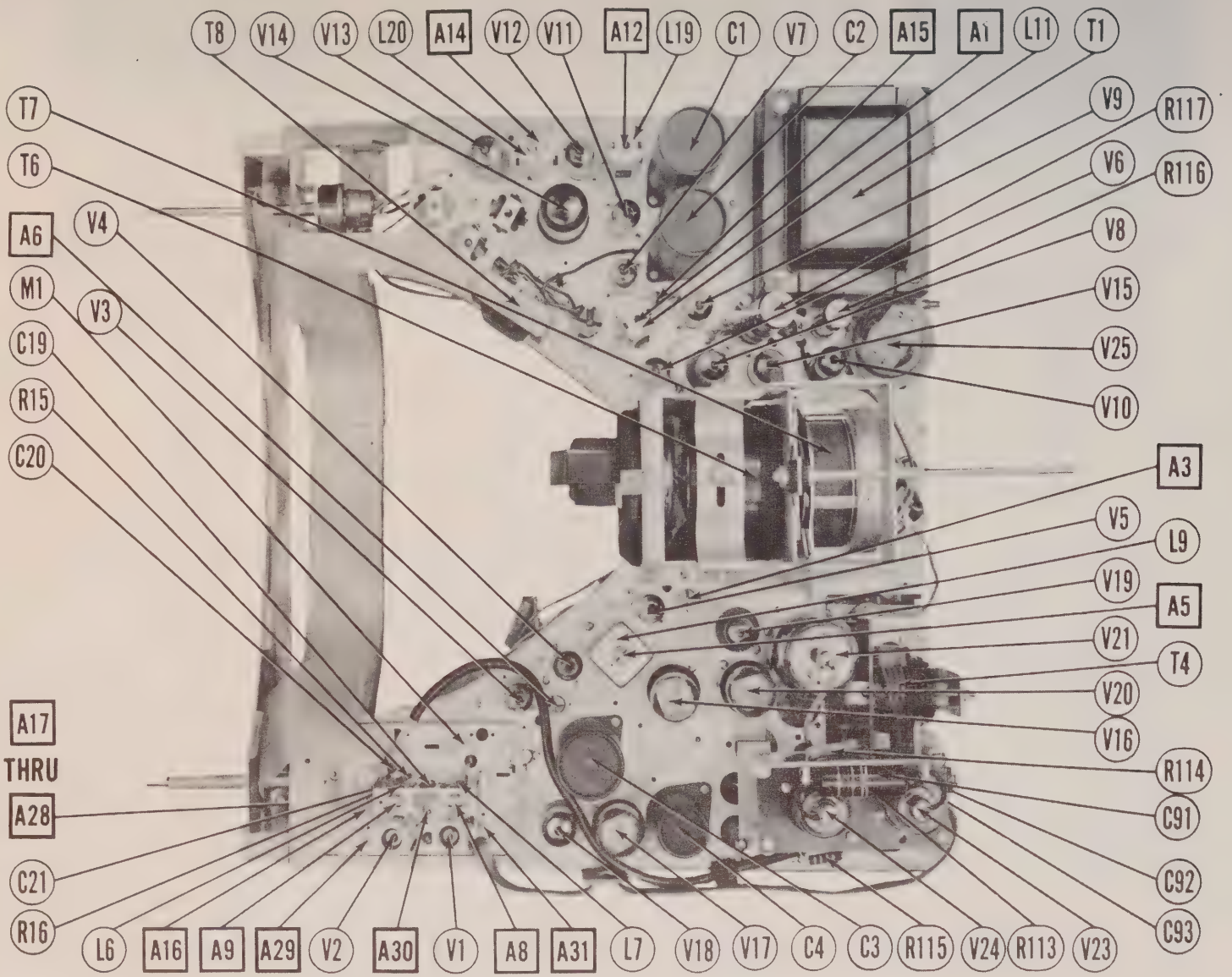
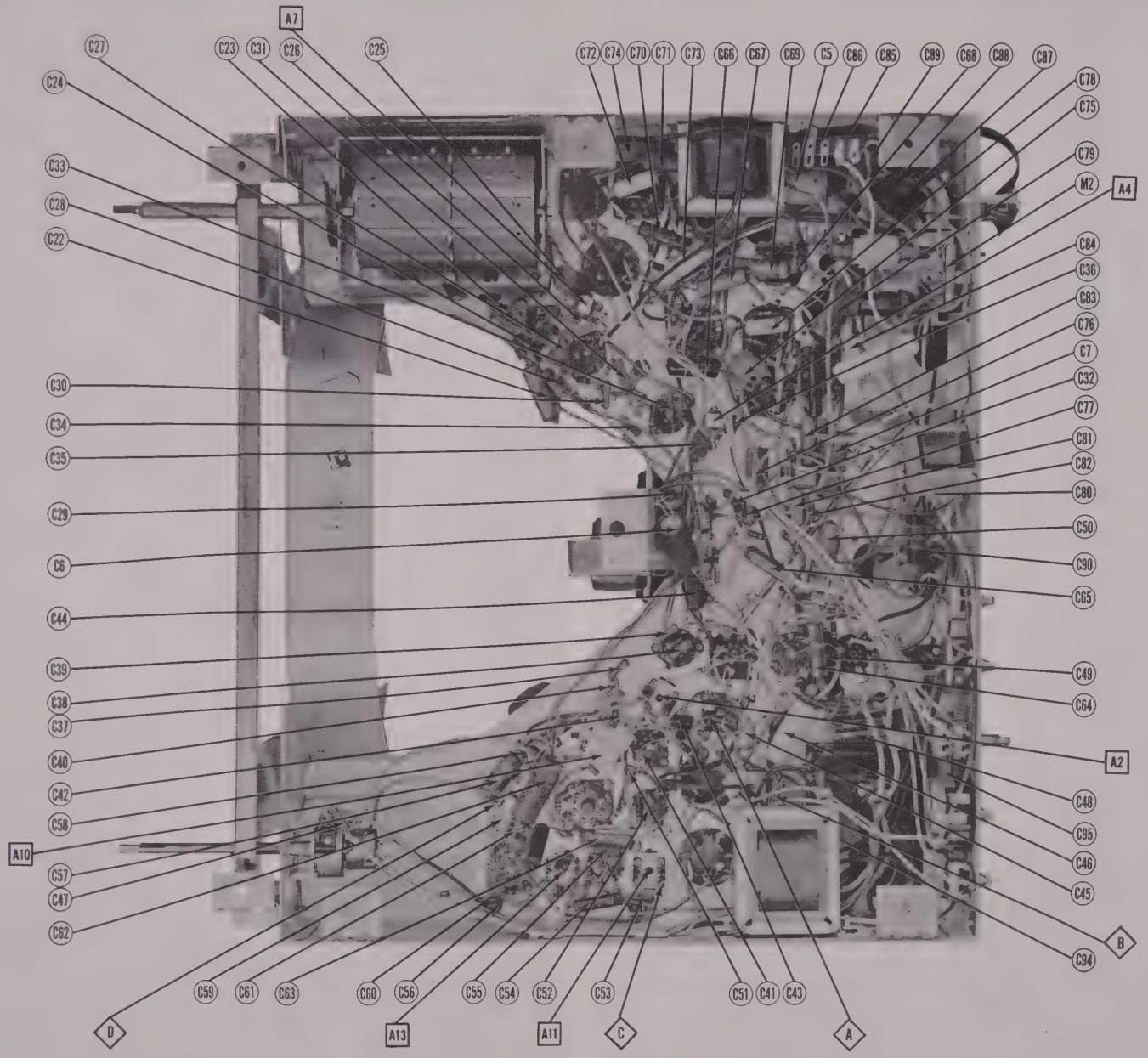
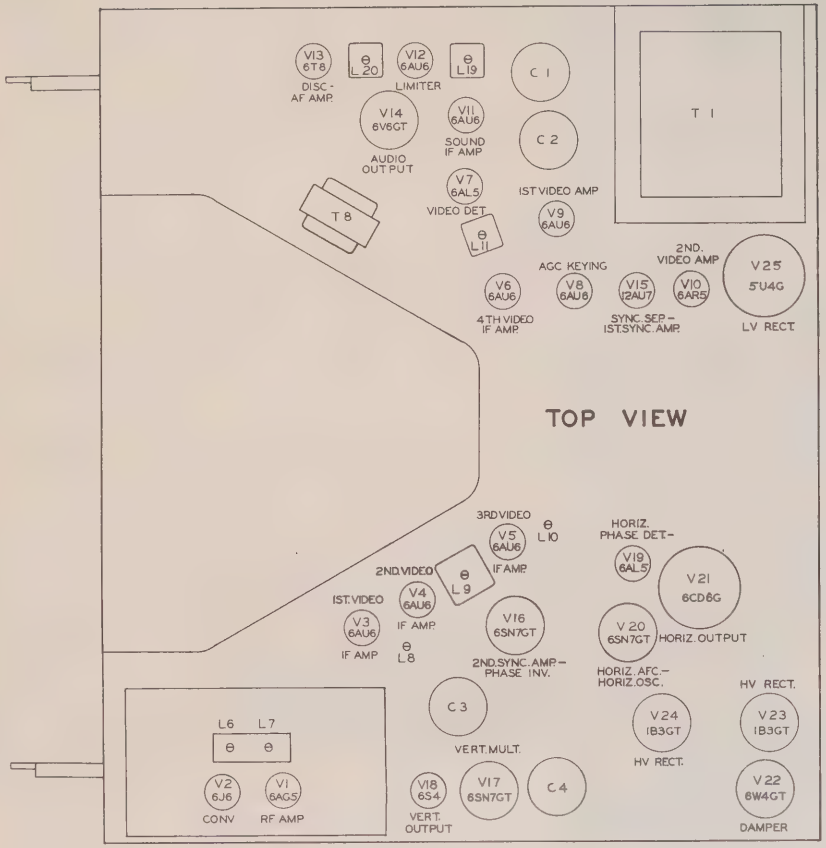
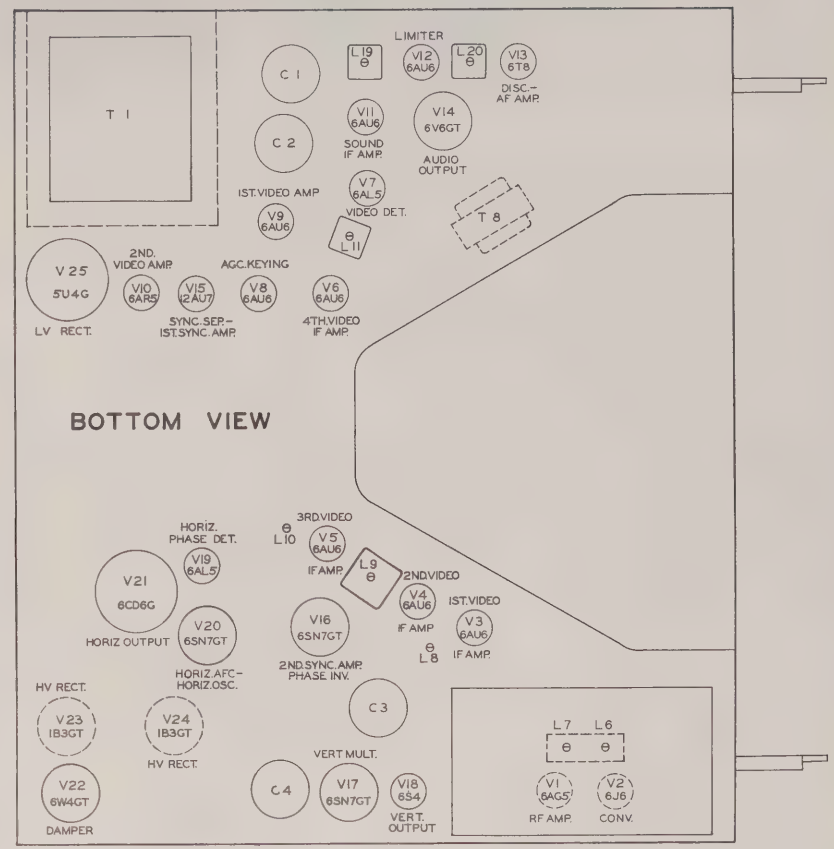


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

MODELS 629B, 629C, 651B (Ch. 120120)

EMERSON

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and eliminate the possibility of erroneous indications.

Connect the negative lead of a 3 volt battery to the junction of R71 and C29, connect the positive lead to chassis.

During video IF alignment the common lead of the VTVM is connected to approximately -115 volts. Avoid touching or grounding the VTVM case.

Connect a 10KΩ decoupling resistor in series with the vertical input lead of the oscilloscope.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.005MFD	High side to pin 1 (Grid) of 6AU6 (V6). Low side to chassis.	23.5MC (10MC SWP)	21.9MC 25.75MC	Any	Vert. Amp. thru 10KΩ to Point (A). Low side to chassis.	A1, A2,	Adjust for response curve similar to figure 1 with markers as shown.
2.	Direct	High side to ungrounded tube shield floating over dummy mixer tube (V2). Low side to chassis.	Not used	23.6MC	"	Use VTVM. DC Probe to Point (A) Common to Point (B).	A3	Adjust for maximum deflection.
3.	Direct	"	"	27.25MC	"	"	A4	Adjust for MINIMUM deflection.
4.	Direct	"	"	25.7MC	"	"	A5	Adjust for maximum deflection.
5.	Direct	"	"	21.9MC	"	"	A6	"
6.	Direct	"	"	21.25MC	"	"	A7	Adjust for MINIMUM deflection.
7.	Direct	"	23.5MC (10MC SWP)	21.25MC 21.9MC 25.75MC	"	"	A8, A9	Adjust for response curve similar to figure 2. If necessary retouch A3, A5 and A6 for proper response.

SOUND IF ALIGNMENT

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

On those models using discriminator transformer (L20) No. 708031 the secondary (A13) is one the bottom. On models using transformer No. 708031B the secondary is on top. The part number is stamped on the side of the shield can.

Determine which transformer is in the set before attempting step 8.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to pin 5 (Cath.) of 6AL5 (V7). Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. Amp. thru 10KΩ to Point (C). Low side to chassis.	A10, A11, A12	Adjust for maximum amplitude and symmetry as per figure 3.
8.	.001MFD	"	"	"	"	Vert. Amp. to Point (D). Low side to chassis.	A13, A14	SEE NOTE ABOVE. Adjust A13 so 4.5MC occurs at center of crossover lines as per figure 4. Adjust A14 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.001MFD	High side to pin 5 (cathode) of 6AL5 (V7). Low side to chassis.	Not used	4.5MC (400 ∿ AM Mod.)	Any	Vert. Amp. to pin 5 (plate) of 6AR5 (V10). Low side to chassis.	A15	Adjust for MINIMUM 400 ∿ indication on scope.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.

Complete oscillator alignment may not be necessary.

If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A16. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A16 will not bring all channels within the range of the fine tuning control, it will be necessary to adjust the individual channel oscillator adjustment screw for each channel that is off frequency. The individual channel oscillator adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to Point (A). Low side to chassis.	A17	Adjust to place sound marker in "notch" as shown in figure 5. The video marker should be at 50%.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A18	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A19	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A20	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A21	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A22	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A23	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A24	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A25	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A26	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A27	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A28	

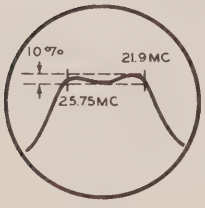


FIG. 1

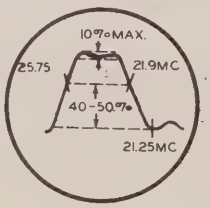


FIG. 2

FIG. 3

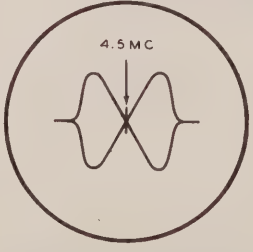


FIG. 4

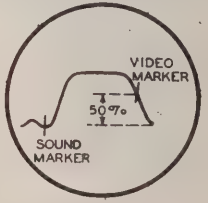


FIG. 5

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. to Point (E) Low side to chassis.	A29, A30, A31	Adjust for response curve similar to figure 6 with markers at 90%.
12.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to figure 6. If markers fall below 70% on any channel, make slight adjustment of A29, A30 and A31 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

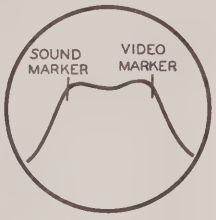


FIG.6

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-1.2VDC	0V	6.3VAC	0V	75VDC	75VDC	0V		
V 2	6J6	70VDC	65VDC	6.3VAC	0V	-1.6VDC	§-2.2VDC	0V		
V 3	6AU6	-.8VDC	0V	0V	6.3VAC	80VDC	80VDC	.4VDC		
V 4	6AU6	-.6VDC	0V	0V	6.3VAC	55VDC	80VDC	.4VDC		
V 5	6AU6	0V	0V	0V	6.3VAC	140VDC	80VDC	1.2VDC		
V 6	6AU6	0V	0V	0V	6.3VAC	150VDC	80VDC	1.4VDC		
V 7	6AL5	0V	▲0V	▲6.3VAC	▲0V	▲.4VDC	▲.4VDC	0V		
V 8	6AU6	3.2VDC	35VDC	6.3VAC	0V	-.9VDC	150VDC	35VDC		
V 9	6AU6	▲.1VDC	▲.3VDC	▲0V	▲6.3VAC	▲105VDC	▲115VDC	▲5VDC		
V 10	6AR5	▲-1.9VDC	▲4.2VDC	▲0V	▲6.3VAC	▲185VDC	▲115VDC	▲0V		
V 11	6AU6	▲.4VDC	▲.4VDC	▲6.3VAC	▲0V	▲115VDC	▲115VDC	▲2VDC		
V 12	6AU6	-.5VDC	0V	0V	6.3VAC	80VDC	20VDC	0V		
V 13	6T8	-.7VDC	-.7VDC	-.1VDC	6.3VAC	0V	0V	0V	-1VDC	45VDC
V 14	6V6GT	0V	▲6.3VAC	▲155VDC	▲160VDC	▲0V	▲0V	▲0V	▲8.5VDC	
V 15	12AU7	▲40VDC	▲-.5VDC	▲0V	▲6.3VAC	▲6.3VAC	▲9VDC	▲0V	▲1.8VDC	▲0V
V 16	6SN7GT	▲-1VDC	▲55VDC	▲0V	▲0V	▲260VDC	▲13VDC	▲6.3VAC	▲0V	
V 17	6SN7GT	▲-18VDC ▲-26VDC	▲120VDC ▲75VDC	▲4.4VDC	▲0V	▲100VDC	▲4.4VDC	▲6.3VAC	▲0V	
V 18	6S4	0V	▲45VDC ▲9VDC	▲.2VDC	▲0V	▲6.3VAC	▲.2VDC	0V	0V	▲460VDC
V 19	6AL5	▲3VDC	▲-3VDC	▲0V	▲6.3VAC	▲-.2VDC	▲0V	▲-.2VDC		
V 20	6SN7GT	▲.4VDC	▲22VDC	▲1.3VDC	▲-53VDC ▲-58VDC	▲250VDC	▲0V	▲6.3VAC	▲0V	
V 21	6CD6G	0V	▲0V	▲12VDC	▲-17VDC	▲-17VDC	▲0V	▲6.3VAC	▲130VDC	TOP CAP *
V 22	6W4GT	0V	0V	▲460VDC	0V	▲340VDC	0V	▲460VDC	▲460VDC	
V 23	1B3GT	* DO NOT MEASURE								
V 24	1B3GT	* DO NOT MEASURE								
V 25	5U4G	0V	▲360VDC	0V	▲360VAC	0V	▲360VAC	0V	▲360VDC	
V 26	16GP4	▲0V	▲0V	PIN 10 ▲360VDC	PIN 100VDC	11 0V	PIN 12 ▲6.3VAC			

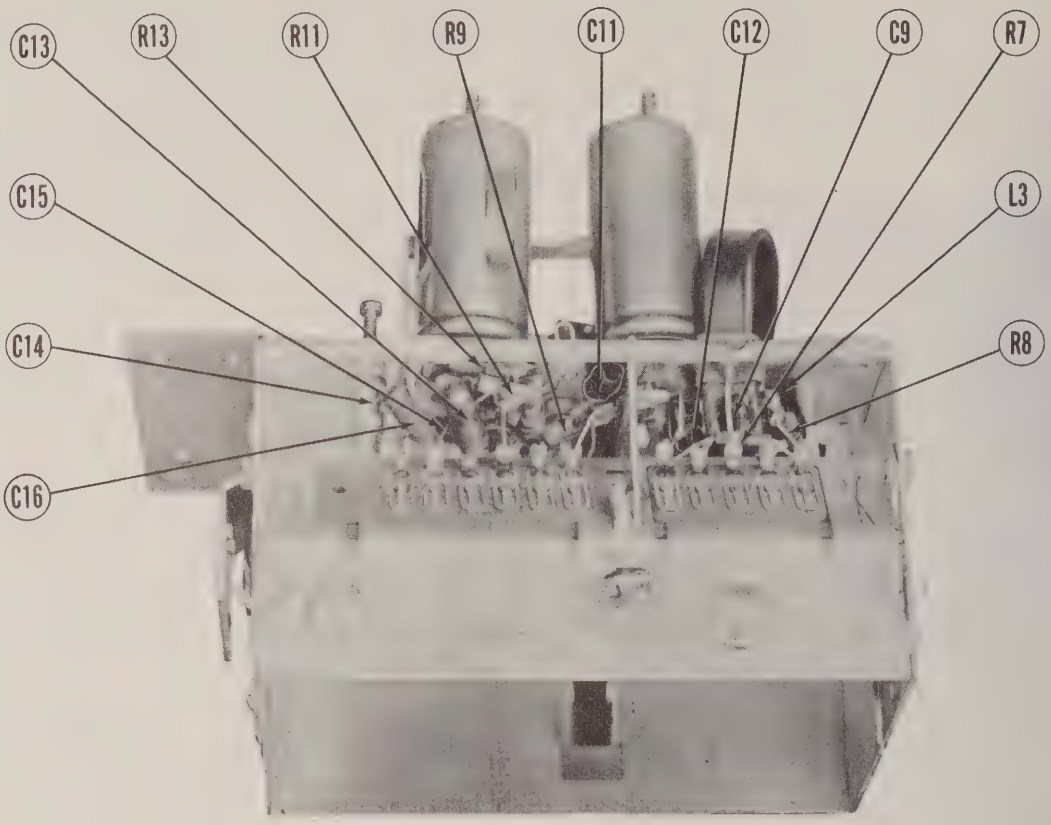
FOCUS CONTROL COUNTERCLOCKWISE
▲ MEASURED FROM -115VDC POINT
§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

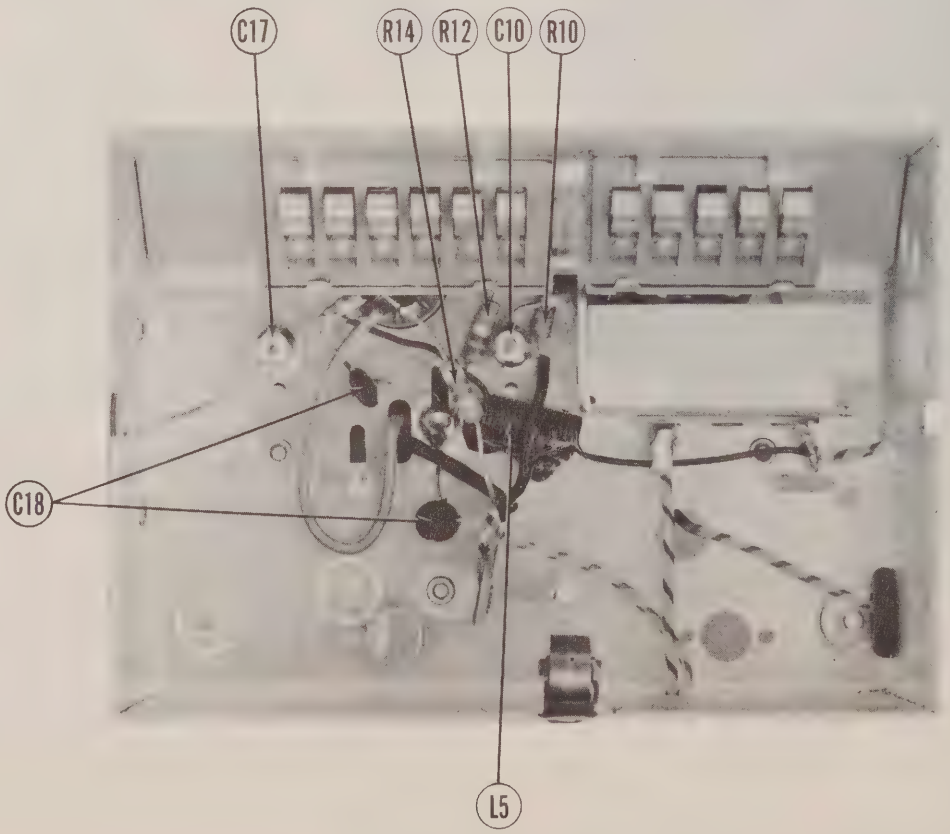
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	100KΩ	0Ω	.1Ω	0Ω	†4.2KΩ	†4.2KΩ	0Ω		
V 2	6J6	†6.7KΩ	†12KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6AU6	50KΩ	0Ω	0Ω	.1Ω	†3KΩ	†3KΩ	68Ω		
V 4	6AU6	160KΩ	0Ω	0Ω	.1Ω	†11KΩ	†3KΩ	68Ω		
V 5	6AU6	.2Ω	0Ω	0Ω	.1Ω	†5.7KΩ	†3KΩ	220Ω		
V 6	6AU6	.2Ω	0Ω	0Ω	.1Ω	†2KΩ	†3KΩ	220Ω		
V 7	6AL5	Inf.	▲4.7KΩ	▲.1Ω	▲0Ω	▲11Ω	▲10Ω	Inf.		
V 8	6AU6	†12KΩ	†5KΩ	.1Ω	0Ω	47KΩ	†1KΩ	†5KΩ		
V 9	6AU6	▲4.7KΩ	▲10Ω	▲10Ω	▲.1Ω	†9KΩ	0Ω	▲20Ω		
V 10	6AR5	▲1.3 Meg.	▲2KΩ	▲0Ω	▲.1Ω	†5.3KΩ	0Ω	Inf.		
V 11	6AU6	▲15Ω	▲10Ω	▲.1Ω	▲0Ω	2.5Ω	0Ω	▲230Ω		
V 12	6AU6	47KΩ	0Ω	0Ω	.1Ω	†3KΩ	†12KΩ	0Ω		
V 13	6T8	100KΩ	100KΩ	200KΩ	.1Ω	0Ω	Inf.	0Ω	10 Meg.	†470KΩ
V 14	6V6GT	Inf.	▲.1Ω	†3.8KΩ	†3.5KΩ	▲470KΩ	▲0Ω	▲0Ω	▲330Ω	
V 15	12AU7	▲4KΩ	▲1 Meg.	▲0Ω	▲.1Ω	▲.1Ω	▲8KΩ	▲0Ω	▲220KΩ	▲0Ω
V 16	6SN7GT	▲180KΩ	▲7KΩ	▲0Ω	▲470KΩ	†4.3KΩ	▲3.3KΩ	▲.1Ω	▲0Ω	
V 17	6SN7GT	▲1.5 Meg.	#1.2Meg. #3.2Meg.	▲2.2KΩ	▲60KΩ	#170KΩ	▲2.2KΩ	▲.1Ω	▲0Ω	
V 18	6S4	Inf.	▲5.5KΩ ▲470Ω	▲2.7Meg.	▲0Ω	▲.1Ω	▲2.7Meg.	Inf.	Inf.	#1.4KΩ
V 19	6AL5	▲4.8Meg.	▲4.8Meg.	▲0Ω	▲.1Ω	▲100KΩ	▲0Ω	▲100KΩ		
V 20	6SN7GT	▲4.7Meg.	#240KΩ	▲1.5KΩ	#310KΩ #360KΩ	#90KΩ	▲0Ω	▲.1Ω	▲0Ω	
V 21	6CD6G	Inf.	▲0Ω	▲100Ω	▲800KΩ	▲800KΩ	▲0Ω	▲.1Ω	†14KΩ	TOP CAP #45Ω
V 22	6W4GT	Inf.	Inf.	▲330KΩ	Inf.	†110Ω	Inf.	#12Ω	#12Ω	
V 23	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #200Ω
V 24	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP Inf.
V 25	5U4G	Inf.	8KΩ	Inf.	▲20Ω	Inf.	▲20Ω	Inf.	8KΩ	
V 26	16GP4	▲0Ω	▲1 Meg.	PIN 10 #22KΩ	PIN 110KΩ	11 140KΩ	PIN 12 ▲.1Ω			

FOCUS CONTROL COUNTERCLOCKWISE
† MEASURED FROM PIN 8 OF V25
▲ MEASURED FROM -115 VDC POINT
MEASURED FROM PIN 3 OF V22

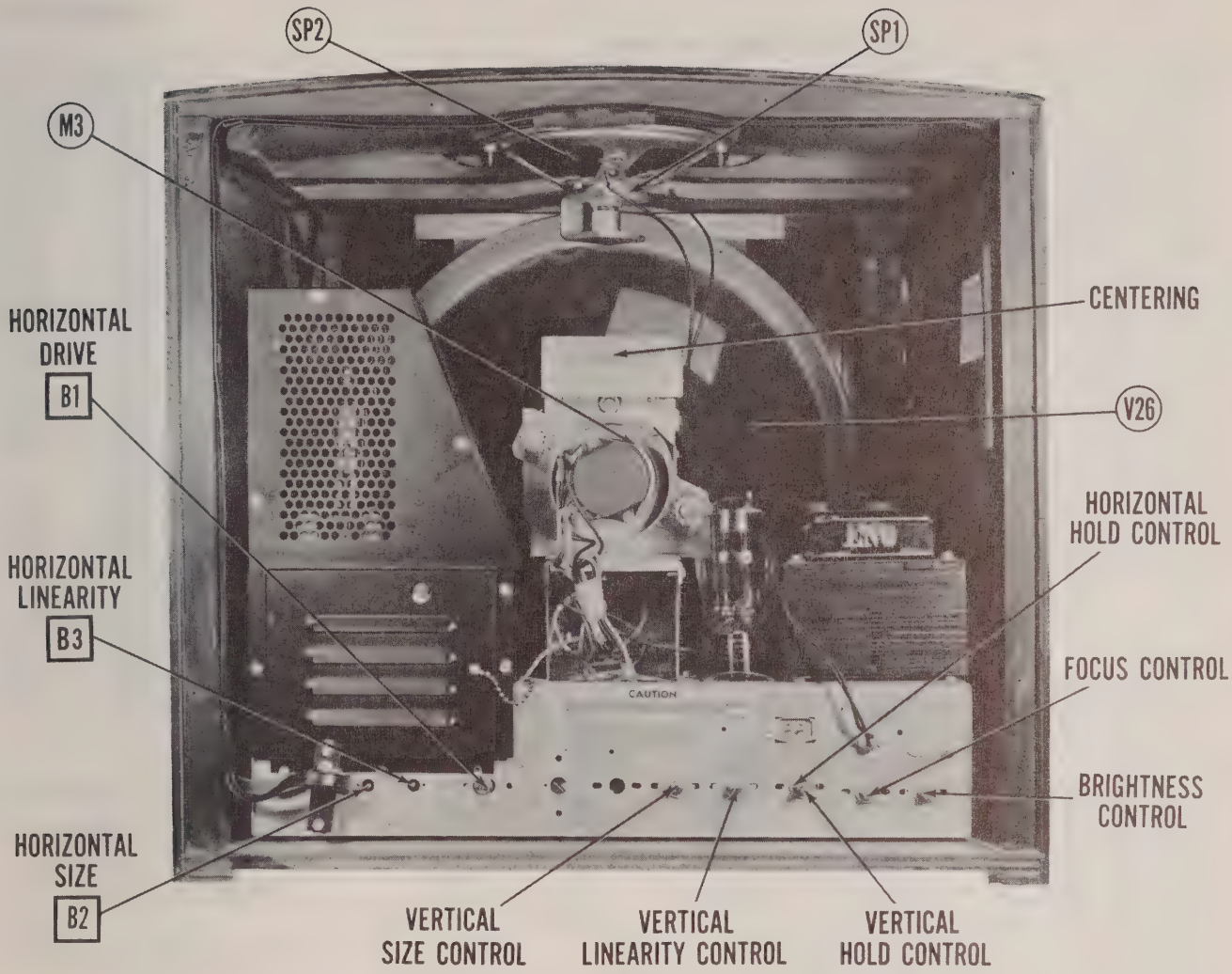
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Synchronize the picture with the horizontal and vertical hold controls.

Adjust the horizontal drive trimmer (B1) clockwise as far as possible without crowding the right side of the picture.

Adjust the horizontal size slug (B2) until the picture fills the mask horizontally.

Adjust the horizontal linearity slug (B3) until the picture is symmetrical from left to right. Slight readjustment of B1 may be necessary to obtain optimum linearity.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	800536	6AG5	7BD	
V2	Converter	800535	6J6	7BF	
V3	1st Video IF	800533	6AU6	7BK	
V4	2nd Video IF	800533	6AU6	7BK	
V5	3rd Video IF	800533	6AU6	7BK	
V6	4th Video IF	800533	6AU6	7BK	
V7	Video Det.	800541	6AL5	6BT	
V8	AGC Keying	800533	6AU6	7BK	
V9	1st Video Amp.	800533	6AU6	7BK	
V10	2nd Video Amp.	800038	6AR5	6CC	
V11	Sound IF Amp.	800533	6AU6	7BK	
V12	Limiter	800533	6AU6	7BK	
V13	Discr. -AF Amp.	800035	6T8	9E	
V14	Audio Output	800270	6V6GT	7AC	
V15	Sync. Sep. -1st Sync. Amp.	800026	12AU7	9A	
V16	2nd Sync. Amp. - Phase Inv.	800380	6SN7GT	8BD	
V17	Vert. Mult.	800380	6SN7GT	8BD	
V18	Vert. Output	800048	6S4	9AC	
V19	Hor. Phase Det.	800541	6AL5	6BT	
V20	Hor. AFC-Hor. Osc.	800380	6SN7GT	8BD	
V21	Hor. Output	800049	6CD6G	5BT	
V22	Hor. Damper	800037	6W4GT	4CG	
V23	HV Rect.	800450	1B3GT	3C	
V24	HV Rect.	800450	1B3GT	3C	
V25	LV Rect.	800290	5U4G	5T	
V26A	Picture Tube	810011	16GP4	12D	
B	Picture Tube		16AP4	12D	Used in model 629B

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	925148	AFH888J		UPT44445		TVL-3787	▲ Filter
B	40	450							■ Filter
C	40	450							▲ Filter
C2A	40	450	925148	AFH888J		UPT44445		TVL-3787	● Filter
B	40	450							■ Filter
C	40	450							▲ Filter
C3A	80	250	925149	AFH16FBD10F		UPT825-415V5		TVL-4524	● Filter
B	40	150							■ Decoupling
C	50	50							▲ Vert. Output Cath.
C4A	10	450	925166-4	AFH22J		UPU145		TVL-4760	■ Decoupling
B	10	450		PRS350/24		BR2035A			▲ Output Decoupling
C	20	350							Decoupling
C5	20	350	925134-1	PRS350/24		BR2035A		TVA-1608	Decoupling
C6	10	50	925072	PRS50/10		BR105		TVA-1304	AGC Filter
C7	4	25	925071-1	PRS150/4		BR550		TVA-1203	Hor. Output Cath.
C8	5			SI5NPO	TCZ-4.7		NPOK-5		Fixed Trimmer *
C9	.5-3				829-3				Variable Trimmer
C10	.5-3				829-3				Variable Trimmer
C11	120			SI120	D6-121		GP2K-120	19C29	RF Amp. Decoup.
C12	1000			SI1000	D6-102		GP2L-001	19C1	RF Amp . Fil.
C13	100			SI100N750	TCN-100		N750L-100	29C16	RF Coupling
C14	.5-3				829-3				Variable Trimmer
C15	20			SI20NPO	TCZ-20		NPOK-20		Osc. Grid Cap.
C16	10			SI10N750	TCN-10		N750K-10	19C4	Fixed Trimmer
C17	.5-3				829-3				Variable Trimmer
C18A	1000		BPD-2 x 001	DD-2-102		812-2 x 001		29C7	RF Bypass Conv. Fil. Byp.
B	1000								RF Coupling
C19	2.5			BPD-001	DD-102		801-001	19C1	Conv. Plate Dec.
C20	1000			1469-0001	TCZ-10		NPOK-10	19C3	Fixed Trimmer
C21	10	500					821-01	4TM-S1	AGC Filter
C22	.01	200	923100	P488-01	D6-103				AGC Filter
C23	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	1st V. IF Dec.
C24	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	1st V. IF Dec. *
C25	.1	400	922008	P488-1	DF-104	PTE4P1		4TM-P1	Fixed Trimmer
C26	75			SI75N750	TCN-75		N750L-75		IF Coupling
C27	150	500	910215	1468-00015	D6-151	5W5T15	GP2K-150	1FM-315	AGC Filter
C28	200	500	910225	1468-0002	D6-201	5W5T2	GP2K-200	1FM-32	AF Amp. Fil.
C29	.1	200	923101	P288-1	DF-104	PTE4P1		2TM-P1	2nd V. IF Dec.
C30	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	IF Coupling
C31	270	500	910214	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	3rd V. IF Plate Dec.
C32	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	3rd V. IF Screen
C33	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	3rd V. IF Cath.
C34	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	IF Coupling
C35	270	500	910214	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	Fixed Trimmer
C36	50			SI50NPO	TCZ-50	5R5Q5	NPOM-50	MS-45	4th V. IF Plate Dec.
C37	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	4th V. IF Screen
C38	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	4th V. IF Cath.
C39	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	RF Bypass
C40	5000		928109	BPD-005	DD-502	1D5D5	811-005	29C1	V. Diode Filter
C41	5		928047	SI5	TCZ-5	5W5V5	GP1K-5	MS-55	V. Det. Fil.
C42	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	Fixed Trimmer
C43	47	500		1469-00005	TCZ-4.7	5R5Q6	NPOM-50	MS-45	Hor. Sweep Feedback
C44	3300	500	910219						Peaking
C45	470	500	910037	1468-0005	D6-471	5W5T5	GP2K-570	1FM-35	Video Coupling
C46	.047	400	922025	P488-047	DF-503	PTE4S5		4TM-S47	Video Coupling
C47	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	RF Bypass
C48	.047	400	922025	P488-047	DF-503	PTE4S5		4TM-S47	Video Coupling
C49	.1	400	922008	P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C50	.1	400	923108	P488-1	DF-104	PTE4P1		4TM-P1	Pic. Tube Cath.
C51	5		928047	SI5N750	TCZ-4.7	5R5V5	N750K-5	MS-55	S. IF Coupling
C52	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	S. IF Cath.
C53	68	500	910221	SI68	D6-680	5W5Q7	GP1K-68	19C10	Limiter Grid Filter
C54	.005	600	923110	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Limiter Plate Dec.
C55	1500		928006	SI1500	D6-152	1WSD15	GP2L-0015	29C8	Limiter Screen

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C56	50	500	910222	1468-00005	D6-500	5W5Q5	GP1K-50	1FM-45	RF Bypass
C57	.001	400	923109	P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	De-emphasis
C58	.01	400	923104	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C59	.01	400	923015	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C60	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Discr. -AF Amp. Fil.
C61	200	500	910225	1468-0002	D6-201	5W5T2	GP2K-200	1FM-32	AF Amp. Plate
C62	.05	600	923111	P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C63	.005	600	923110	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate Byp.
C64	.047	400	922025	P488-047	DF-503	PTE4S5		4TM-S47	Sync. Coupling
C65	.047	400	922025	P488-047	DF-503	PTE4S5		4TM-S47	Sync. Coupling
C66	.047	400	922025	P488-047	DF-503	PTE4S5		4TM-S47	Sync. Coupling
C67	.01	400	923104	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Vert. Sync. Coup.
C68	.002	400	923107	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Integrator Net.
C69	.005	400	923108	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Integrator Net.
C70	.005	400	923108	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Integrator Net.
C71	.05	400	923105	P488-05	DF-503	PTE4S5		4TM-S5	Vert. MV Cath.
C72	.005	600	922001	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Vert. MV Feedback
C73	.05	600	922002	P688-05		PTE6S5		6TM-S5	Vert. Discharge
C74	.1	600	922033	P688-1		PTE6P1		6TM-P1	Vert. Sweep Coupling
C75	1000	500	910211	1467-001	D6-102	1W5D1	GP2L-001	1FM-21	Hor. Sync. Coupling
C76	1000	500	910211	1467-001	D6-102	1W5D1	GP2L-001	1FM-21	Hor. Sync. Coupling
C77	.01	400	922015	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Hor. Feedback
C78	.01	400	922015	P488-01	D6-103	PTE4S1	821-01	4TM-S1	AFC Filter
C79	.22	400	922018	P488-22		GT4P2		4TM-P22	AFC Feedback
C80	820	500	910218			1W5T8		MS-38	Hor. Osc. Grid
C81	820	500	910218			1W5T8		MS-38	Hor. Osc. Grid
C82	560	500	910038	SI560	D6-561	5R5T5	GP2K-560	MS-35	Hor. Discharge
C83	.01	400	923104	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Hor. Sweep Coupling
C84	.05	600	922002	P688-05	DF-503	PTE6S5		6TM-S5	Hor. Output Screen
C85	.1	200	923101	P288-1		PTE4P1		2TM-P1	Damper Filter
C86	.03	400	923093	P688-03		PTE6S3		6TM-S3	Damper Filter
C87	250	3000	928047						Damper Plate Byp.
C88	50	3000	928048						Damper Plate Byp.
C89	.1	400	923106	P488-1	DF-104	PTE4P1		4TM-P1	Decoupling
C90	.047	400	922036	P488-047	DF-503	PTE4S5		4TM-S47	Hor. Sweep Coupling
C91	.0005	10000	922005	P10088-0005		PTE10OT5		TVM-351	Voltage Doubler Cap.
C92	.0005	10000	922005	P10088-0005		PTE10OT5		TVM-351	HV Filter
C93	.0005	10000	922005	P10088-0005		PTE10OT5		TVM-351	HV Filter
C94	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	Filament Bypass
C95	.05	400	922004	P488-05	DF-503	PTE4S5		4TM-S5	Line Filter
C96	1500		928006	SI1500	D6-152	1W5D15	GP2L-0015	29C8	AGC Filter *

* Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2500Ω	2	390074-5		RTV-69		Contrast control-Wire Wound-front
B	1 Meg.	½					Volume control and switch-rear
R2A	2 Meg.	½	390143	Q11-139	AG-83-S	AN-75	Vert. size control
B	Shaft		Not Req.	FKS-1/4	AK-1		Attach to R2A per instructions
R3	5000Ω	2	390143	W-5000	43-5000	VK-135	Vert. linearity control-Wire Wound
R4A	50KΩ	½		Concentrikit			Horiz. hold control-front
B	1 Meg.	½	390141	B11-123 *	RTV-84	SBB-60	Vert. hold control-rear
C	Shaft End			E-187 *			Attach per instr. in "Concentrikit".
R5	1500Ω	4	390134		RTV-6	SVP-994	Focus control-Wire Wound
R6A	100KΩ	½	390132	Q11-128	AG-49-S	B-40	Brightness control
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Attach to R6A per instructions

* Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R7	3900Ω	½		BTS-3900	Antenna Coil Shunt
R8	47KΩ 20%	½		BTS-47K	AGC Network
R9	10KΩ	½			RF Amp. Plate Coil Shunt
R10	22000Ω 20%	½		BTS-2200	RF Amp. Decoupling
R11	4700Ω	½		BTS-4700	Conv. Grid
R12	220KΩ 20%	½			Conv. Grid
R13	10KΩ	½			Osc. Grid
R14	4700Ω	½		BTS-4700	Osc. Plate
R15	10KΩ	½	340732		Conv. Plate Decoupling-See Note 1
R16	18KΩ	½	340792		1st Video IF Transformer Shunt-See Note 2
R17	1000Ω	½	340492	BTS-1000	AGC Network-See Note 2
R18	5600Ω	½	340672		1st Video IF Transformer Shunt
R19	68Ω	½	340212		1st Video IF Amp. Cathode
R20	1000Ω 20%	½	350492	BTS-1000	1st Video IF Amp. Decoupling
R21	1000Ω 20%	½	350492	BTS-1000	AGC Network
R22	100KΩ 20%	½	350972	BTS-100K	AGC Network
R23	1000Ω 20%	½	350492	BTS-1000	AGC Network
R24	10KΩ	½	340732		2nd Video IF Amp. Grid
R25	68Ω	½	340212		2nd Video IF Amp. Cathode
R26	8200Ω	½	340712		2nd Video IF Amp. Plate
R27	1000Ω 20%	½	350492	BTS-1000	2nd Video IF Amp. Decoupling
R28	220Ω	½	340332	BTS-220	3rd Video IF Amp. Cathode
R29	1000Ω 20%	½	350492	BTS-1000	3rd Video IF Amp. Screen
R30	2700Ω	½	340592	BTS-2700	3rd Video IF Amp. Plate
R31	1000Ω 20%	½	350492	BTS-1000	3rd Video IF Amp. Plate Decoupling
R32	220Ω	½	340332	BTS-220	4th Video IF Amp. Cathode
R33	1000Ω 20%	½	350492	BTS-1000	4th Video IF Amp. Screen
R34	1000Ω 20%	½	350492	BTS-1000	4th Video IF Amp. Plate Decoupling
R35	33KΩ	½	340852	BTS-33K	Video Peaking Coil Shunt
R36	4700Ω	½	340652	BTS-4700	Video Det. Diode Load
R37	10Ω	½	340012	BW-½-10	1st Video Amp. Cathode
R38	10Ω	½	340012	BW-½-10	Bias Network
R39	2200Ω	½	340572	BTS-2200	Video Peaking
R40	3300Ω	½	340612	BTS-3300	1st Video Amp. Plate
R41	1 Meg.	½	341212	BTS-1 Meg.	Voltage Divider
R42	1 Meg.	½	341212	BTS-1 Meg.	Voltage Divider

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
R43	2.2 Meg.	½	341292	BTS-2.2 Meg.	2nd Video Amp. Grid
R44	68Ω	½	340212	BW-½-68	2nd Video Amp. Cathode
R45	47000Ω	½	340652	BTS-4700	Voltage Divider
R46	18KΩ	2	340792	BTS-18K	Video Peaking Coil Shunt
R47	3300Ω	2	397612	BTB-3300	2nd Video Amp. Plate
R48	2200Ω	½	340572	BTS-2200	Phase Correction
R49	100KΩ	½	340972	BTS-100K	Picture Tube Cathode
R50	10KΩ	½	340732	BTS-10K	Voltage Divider
R51	22KΩ	½	340812	BTS-22K	Voltage Divider-See Note 2
R52	1 Meg. 20%	½	351212	BTS-1 Meg.	Picture Tube Grid
R53	220KΩ	½	341052	BTS-220K	DC Rest. Load
R54	22KΩ	½	340812		Sound IF Coil Shunt
R55	220Ω	½	340332	BTS-220	Sound IF Amp. Cathode
R56	47KΩ 20%	½	340892		Limiter Grid
R57	27KΩ	1	370832		Limiter Screen
R58	10000Ω 20%	½	350492	BTS-1000	Limiter Plate Decoupling
R59	10KΩ	½	340732		Voltage Divider
R60	100KΩ	½	340972	BTS-100K	Disc. Diode Load
R61	100KΩ	½	340972	BTS-100K	Disc. Diode Load
R62	68KΩ	½	340932	BTS-68K	De-emphasis
R63	10 Meg. 20%	½	351452	BTS-10 Meg.	AF Amp. Grid
R64	470KΩ	½	341132	BTS-470K	AF Amp. Plate
R65	470KΩ	½	341132	BTS-470K	Audio Output Grid
R66	330Ω	1	370372	BTA-330	Audio Output Cathode
R67	1500Ω 20%	2	397053	BTB-1500	Audio Output Decoupling
R68	10KΩ	½	340732	BTS-10K	AGC Keying Grid
R69	22KΩ	½	340812	BTS-22K	Bias Network
R70	33KΩ	1	370852	BTA-33K	AGC Network
R71	47KΩ	½	340892	BTS-47K	AGC Keying Plate
R72	47KΩ 5%	½	330892	BTS-47K-5%	1st Sync. Amp. Plate
R73	8200Ω	½	340712	BTS-8200	Voltage Divider
R74	1 Meg. 20%	½	351212	BTS-1 Meg.	Sync. Sep. Grid
R75	33000Ω 5%	½	330612	BTS-3300-5%	Sync. Sep. Plate
R76	10KΩ	½	340732	BTS-10K	Voltage Divider
R77	180KΩ	½	341032	BTS-180K	2nd Sync. Amp. Grid
R78	3300Ω	½	340612	BTS-3300	2nd Sync. Amp. Plate
R79	220Ω	½	340332	BTS-220	2nd Sync. Amp. Plate
R80	22KΩ	½	340812	BTS-22K	Differentiator
R81	22KΩ	½	340812	BTS-22K	Integrator
R82	8200Ω	½	340712	BTS-8200	Integrator
R83	8200Ω	½	340712	BTS-8200	Integrator
R84	2200Ω 5%	½	330572	BTS-2200-5%	Vert. Mult. Cathode
R85	150KΩ	1	371012	BTA-150K	Vert. Mult. Plate
R86	470KΩ	½	341132	BTS-470K	Vert. Mult. Grid
R87	1.2 Meg.	½	341232	BTS-1.2 Meg.	Vert. Mult. Plate
R88	8200Ω	½	340712	BTS-8200	Vert. Peaking
R89	2.7 Meg.	½	341312	BTS-2.7 Meg.	Vert. Output Grid
R90	470Ω	½	340412	BTS-470	Vert. Output Cathode
R91	470KΩ 5%	½	331132	BTS-470K-5%	Decoupling
R92	470KΩ	½	341132	BTS-470K	Decoupling
R93	22KΩ	½	340812	BTS-22K	Decoupling
R94	220Ω	½	340332	BTS-220	Centering Network
R95	470KΩ 20%	½	351132	BTS-470K	Horiz. Phase Inv. Grid
R96	3300Ω 5%	½	330612	BTS-3300-5%	Horiz. Phase Inv. Cathode
R97	3300Ω 5%	½	330612	BTS-330-5%	Horiz. Phase Inv. Plate
R98	100KΩ	½	340972	BTS-100K	Horiz. Phase Det. Diode Load
R99	100KΩ	½	340972	BTS-100K	Horiz. Phase Det. Diode Load
R100	100KΩ	½	340972	BTS-100K	Horiz. Phase Det. Diode Load
R101	4.7 Meg.	½	341372	BTS-4.7 Meg.	Horiz. Phase Det. Diode Load
R102	10KΩ	½	340732	BTS-10K	Horiz. AFC Grid
R103	220KΩ	1	371052	BTA-220K	Horiz. AFC Plate
R104	1500Ω	½	340532	BTS-1500	Horiz. AFC Cathode
R105	68KΩ 5%	½	330932	BTS-68K-5%	Horiz. Osc. Grid
R106	22KΩ	½	340812	BTS-22K	Horiz. Osc. Grid
R107	68KΩ 5%	½	330932	BTS-68K-5%	Horiz. Osc. Plate
R108	1 Meg.	½	341212	BTS-1 Meg.	Horiz. Output Grid
R109	68Ω 20%	½	350212		Parasitic Suppressor
R110	100Ω	2	397027	BW-2-100	Horiz. Output Cathode-Wire Wound
R111	14KΩ	5	394074		Horiz. Output Screen-Wire Wound
R112	1000Ω	1	370492	BTA-1000	Horiz. Linearity Coil Shunt
R113	1 Meg.	2	397048		HV Rect. Load-See Note 3
R114	1 Meg.	2	397048		HV Rect. Load-See Note 3
R115	470KΩ	1	371132		HV Filter
R116A	1000Ω	15	394065		Filter-Wire Wound
B	3000Ω	5			Filter-Wire Wound
R117A	5000Ω	8			Bleeder-Wire Wound
B	4000Ω	5	394064		Bias Network-Wire Wound
C	4700Ω	2			Bias Network-Wire Wound
R118	68Ω	½	340212	BW-½-68	Bias Network
R119	2200Ω	1	370572	BTA-2200	Voltage Divider
R120	2200Ω	1	370572	BTA-2200	Voltage Divider

Note 1. Some models use a 1000Ω resistor in this application.
Note 2. Not used in all models.
Note 3. Some models use a 2 Meg., 2 watt resistor in place of R113 and R114.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 2A	750VCT .230ADC	5VAC @ 3A	6.3VAC @ 8A SEC. 4 6.3VAC @ 4.5A	738023			
T2	6.3VAC @ 1.6A	6.3VAC @ 1.2A			730024			F-633

EMERSON
MODELS 629B, 629C, 651B (Ch. 120120)

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T3	9Ω	3.7Ω	738042	A-8110 ①	A-3002 ①		Horiz. Block Osc. Trans.
T4	196Ω Tap ⓐ 40Ω	SEC. 1 60Ω Tap ⓐ 50Ω SEC. 2 7Ω SEC. 3 0Ω SEC. 4 0Ω	738045				Horiz. Output Trans.
T5	1080Ω Tap ⓐ 12Ω		738029-2	A-8113	A-3037	TSO-5 ①	Vert. Output Trans.
T6A	62Ω		708122				Horiz. Deflection Coil
B	11Ω						Vert. Deflection Coil
T7	1500Ω		708046				Focus Coil

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T8	5.8KΩ	3.6Ω	320Ω	.65Ω	734051	A-3849	A-3019	RO-9 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	REPLACEMENT DATA EMERSON PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1A	PM	4.4Ω	180050	12J12	12A4A	
B	PM	4.4Ω	180041	6J4	6A15	
	CONE DIA.	V. C. DIA.				
SP2A	11 7/8"	1"				
B	5 7/8"	9/16"				

FILTER CHOKE

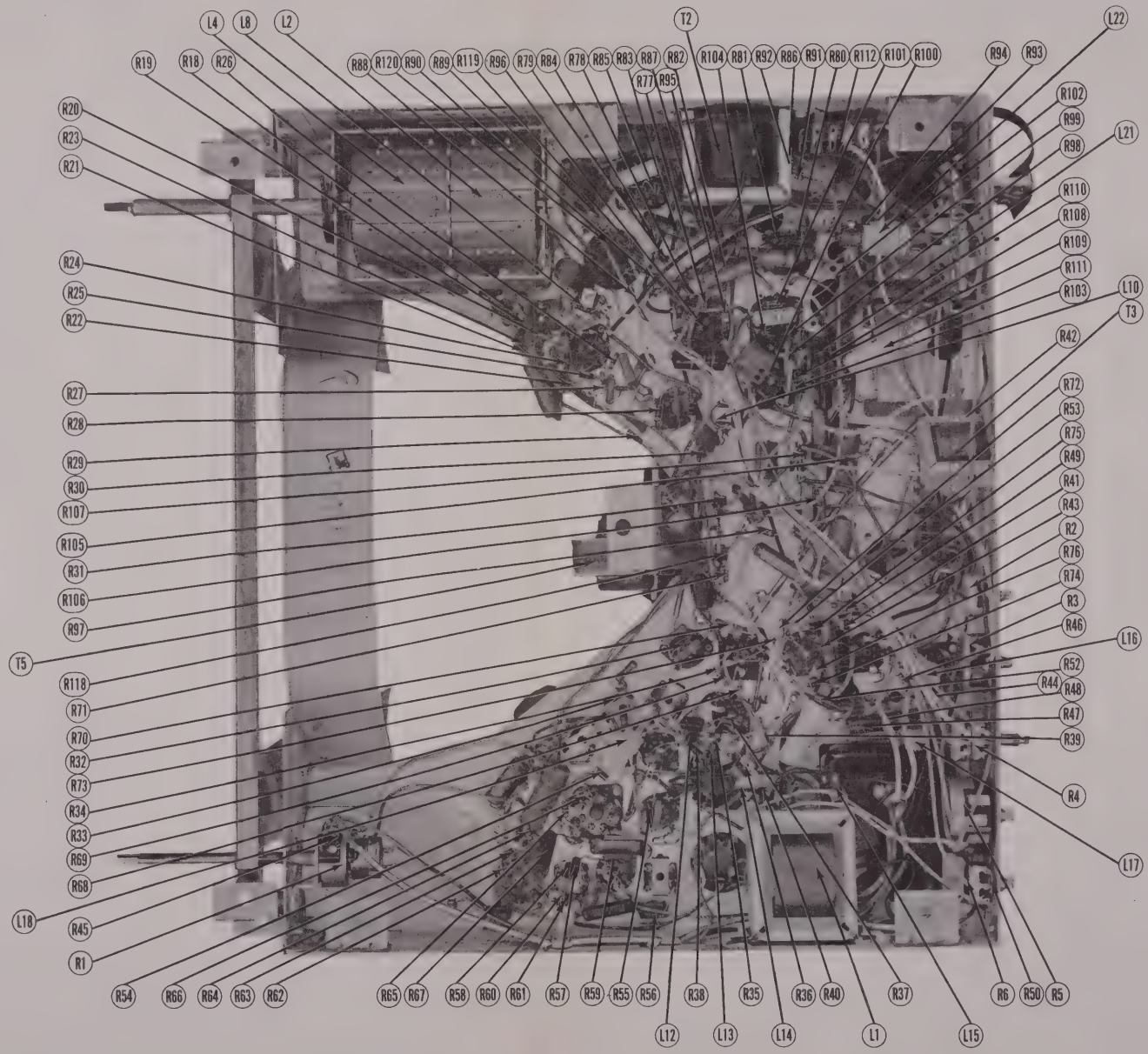
ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.230ADC	110Ω	5.2 Henries	737011	C-2325 ①		TR-3300①	① Drill one new mounting hole.

COILS (RF-IF)

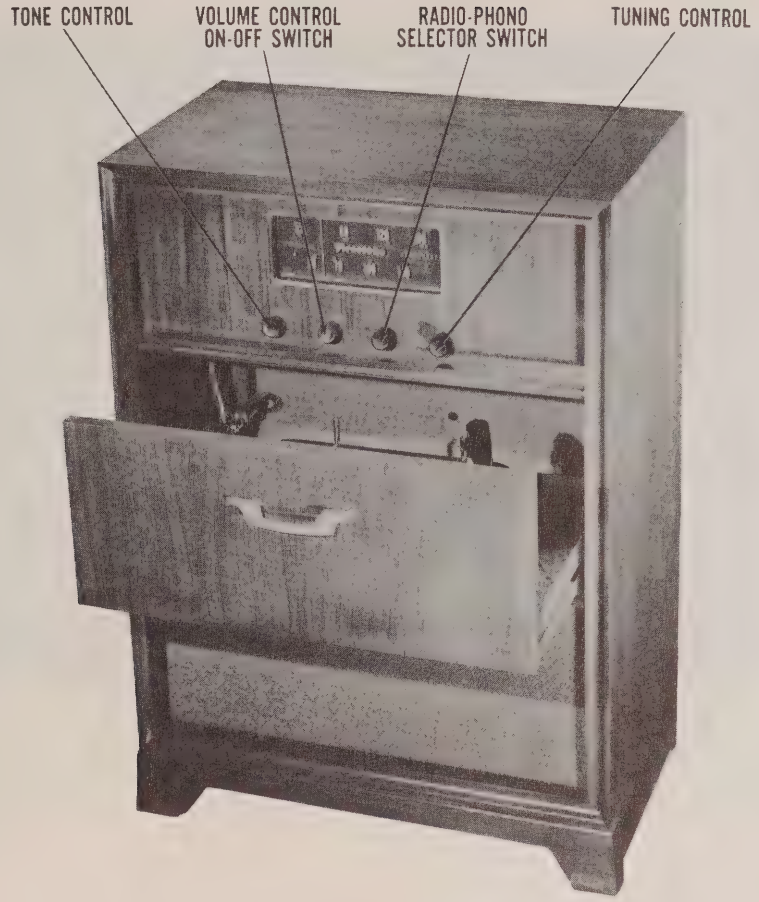
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA EMERSON PART No.	MEISSNER PART No.	NOTES
L2	Ant. Coil	0Ω	0Ω			Part of tuner, #470469-2
L3	Fil. Choke	0Ω				Part of tuner, #470469-2
L4	RF, Mixer Grid & Osc. Coils	0Ω				Part of tuner, #470469-2
L5	Fil. Choke	0Ω				Part of tnnter, # 470469-2
L6	1st Video IF Primary	.2Ω				Part of tuner, #470469-2
L7	1st Video IF Secondary	.3Ω				Part of tuner, #470469-2
L8	2nd Video IF	.2Ω		720105		Includes trap
L9	3rd Video IF	.2Ω		720088		
L10	4th Video IF	.2Ω		720091		Includes trap
L11	5th Video IF	.7Ω	.7Ω	720089		
L12	4.5MC Trap	2Ω		708032		
L13	Peaking	5Ω		708108		60 microhenries
L14	Peaking	14Ω		708099	19-1922	330 microhenries
L15	Peaking	8Ω		708094	19-1921	125 microhenries
L16	Peaking	8Ω		708094	19-1921	125 microhenries
L17	Peaking	8.5Ω		708092	19-1922	150 microhenries
L18	1st Sound IF	4.4Ω		708093		35 microhenries
L19	2nd Sound IF	2.5Ω	2.5Ω	720092		
L20A	Disc. Trans.	3.3Ω	2.7Ω	708031		
B	Disc. Trans.			708031B		Alternate
L21	Horiz. Lin.	5.8Ω		708054		Tap at 1.7Ω
L22	Horiz. Size	.5Ω	18Ω	708053		

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M1	RF Tuner	470469-2	
M2	Fuse	808170	.25A 250V Type BEL
M3	Ion Trap	708084-1	
A10	Trimmer	900064	1st Sound IF 3-35MMF
B1	Trimmer	900054	Horiz. Drive 25-300MMF
	Safety Glass	520125	
	Escutcheon	450028	Volume-contrast
	Knob	450051S	Channel selector
	Knob	450044	Fine tuning
	Knob	450045	Contrast
	Knob	450041S	Volume



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



FIRESTONE
MODEL 4-A-87

FIRESTONE
MODEL 4-A-87

FIRESTONE MODEL 4-A-87

TRADE NAME	Firestone, Model 4-A-87 (Code No. 334-0-5A3A)
MANUFACTURER	Firestone Tire And Rubber Co., Akron, Ohio
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver With Loop Antenna.
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AV6 Det.-AVC-AF, 6AG5 Power Output, 6X4 Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting .

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	455KC (400~Mod.)	Tuning gang fully open	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	.1MFD	"	1620KC	"	"	A5	"
3.		Loop	1400KC	Tune for maximum output	"	A6, A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Set dial pointer to 1400 on dial scale.

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT SEE V-M MODEL 950 IN PHOTOFACT SET #107 FOLDER #13 OR RECORD CHANGER MANUAL CM-3

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

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PARTS LIST AND DESCRIPTIONS

FIRESTONE MODEL 4-A-87

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amp.	6BA6	6BA6	7BK	
V4	Det.-AVC-AF	6AV6	6AV6	7BT	
V5	Power Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	200	45X381	AF844F		UP42225		TVL-3540	■ Filter
B	40	150		PRS25/25		BR202A		TVA-1205	▲ Filter
C	20	25							Output Cath. Bypass
C2	.05	200	B66503	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C3	.02	200	B66203	P488-02	DF-203	PTE4S2		2TM-S2	RF Amp. Screen
C4	.05	200	B66503	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C5	30		47X558	SI30	D6-300	5W5Q3	GPIK-30	19C24	Osc. Grid Cap
C6	.02	200	B66203	P488-02	DF-203	PTE4S2		2TM-S2	Osc. Amode Bypass
C7	.05	200	B66503	P288-05	DF-503	PTE4S5		2TM-S5	Decoupling
C8A	50		* 76X1	SI50	*PC-50	5W5Q5	GPIK-50	19C28	Diode RF Filter
B	50			SI50		5W5Q5	GPIK-50	19C28	Diode RF Filter
C9	.05	200	B65503	P288-05	DF-503	PTE4S5		2TM-S5	Audio Coupling
C10	68	500	47X471	SI68	D6-680	5W5Q7	GPIK-68	19C10	Tone Comp.
C11	.04	200	B66403	P688-04		PTE6S4		6TM-S4	Tone Comp.
C12	.005	400	D66502	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C13	.1	200	B66104	P288-1	DF-104	PTE4P1		2TMP1	AF Amp. Dec.
C14A	250		†	SI250	D6-251	5W5T25	GP2K-250	19C13	AF Amp. Plate
B	10000			BPD-01	DD-103	PTE4S1	821-01	36C1	Audio Coupling
C15	.01	200	B66103	P488-01	D6-103	PTE6S1	821-01	4TM-S1	Tone Comp.
C16	.001	600	F66102	P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Output Plate Bypass

* Items C8A, C8B, And R11 Are Combined Into One Unit.
† Items C14A, C14B, R16 And R16B Are Combined Into One U nite Mfgrs Part No. 76X5

CONTROLS

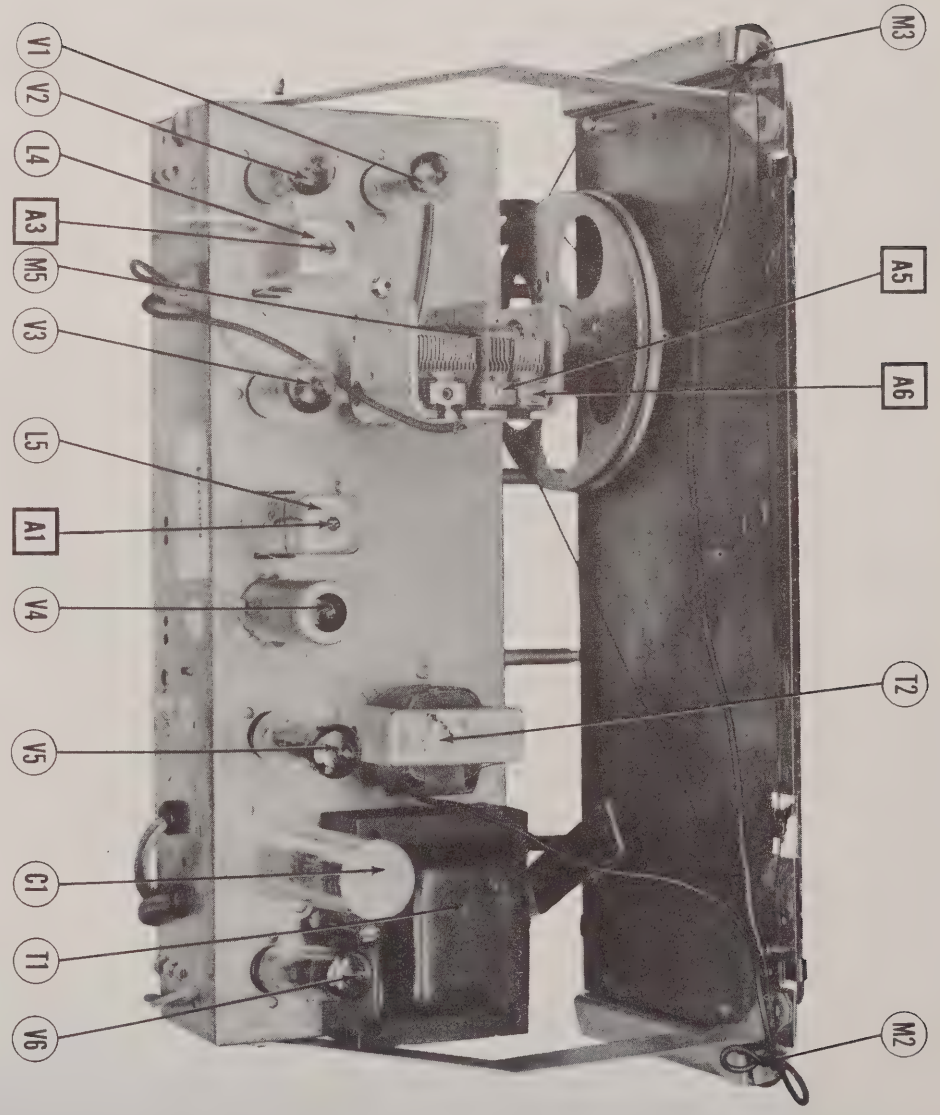
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	40X310	Q13-133	AG-60-Z	BSK-60	Tone control
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R1A per instructions.
R2A	500KΩ	½	36X372	Q13-133X	AK-80	BTSK-66S	Volume control - Tapped @ 100KΩ
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R2A per instructions.
C	Switch		Not req.	76-1	SWB	Not Req.	Attach to R2A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	IDENTIFICATION CODES
R3	100KΩ	½	B85104	BTS-100K	AVC Network
R4	1000Ω	½	B84102	BTS-1000	RF Amp. Cathode
R5	22KΩ	½	B85223		RF Amp. Screen
R6	47Ω	½	B85470		Parasitic Supp
R7	22KΩ	½	B85223		Osc. Grid
R8	4700Ω	½	B84472	BTS-4700	Osc. Anode
R9	2.2Meg	½	B85225	BTS-2.2Meg	AVC Network
R10	470Ω	½	B84471	BTS-470	IF Amp. Cathode
R11	47KΩ	½	**	BTS-47K	Diode Filter
R12	270KΩ	½	B84274	BTS-270K	AVC Diode Load
R13	1800Ω	2	C84182	BTB-1800	Decoup.
R14	15KΩ	½	B84153	BTS-15K	Tone Compensation
R15	10Meg	½	B85106	BTS-10Meg	AF Amp. Grid
R16A	500KΩ	½	††	BTS-470K	AF Amp. Plate
B	500KΩ			BTS-470K	Output Grid
R17	47KΩ	½	B85473	BTS-47K	AF Amp. Plate Decoup.
R18	270Ω	½	B84271	BTS-270	Output Cathode
R19	820Ω	2	D84821	BTB-820	Filter

** Items R11, C8A, And C8B Are Combined Into One Unit. See C8 For Part Number Listing.
†† Items R16A, R16B, C14A, And C14B Are Combined Into One Unit, Mfgrs Part Number 76X5.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ③ .26A	310VCT .050ADC	6.3VAC ⑧ 2.46A		53X291	PM-8418 ②		

② Add Series Resistor To Reduce Plate Voltage.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.3KΩ	3.1Ω	44Ω	.8Ω	51X134	A-3849	A-3019	RO-9 ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	FIRESTONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.2Ω	12A477	ST-115 Mod. P8-V	8A21	
	CONE DIA.	V. C. DIA.				
SP2	7 7/16"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	FIRESTONE PART No.	MEISSNER PART No.	
L1	Loop Antenna	0Ω	1Ω	9A2152		
L2	RF Coil	3.8Ω	5Ω	9A2117	14-1072	
L3	Osc. Coil	.6Ω	7.2Ω	9A2113	14-1073	
L4	1st IF	12Ω	14Ω	9A2112	16-6758	
L5	2nd IF	12Ω	14Ω	9A2063	16-6758	

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA					REMARKS
	FIRESTONE PART No.	ASTATIC PART No.		SHURE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	P-81	AC-AG-J	A-AG	W26B	A66U	

ASTATIC AND SHURE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					FIRESTONE PART No.		
M2	Bayonet	6-8	.15	Brown	7A103		Type No. 47
M3	Bayonet	6-8	.15	Brown	7A103		Type No. 47

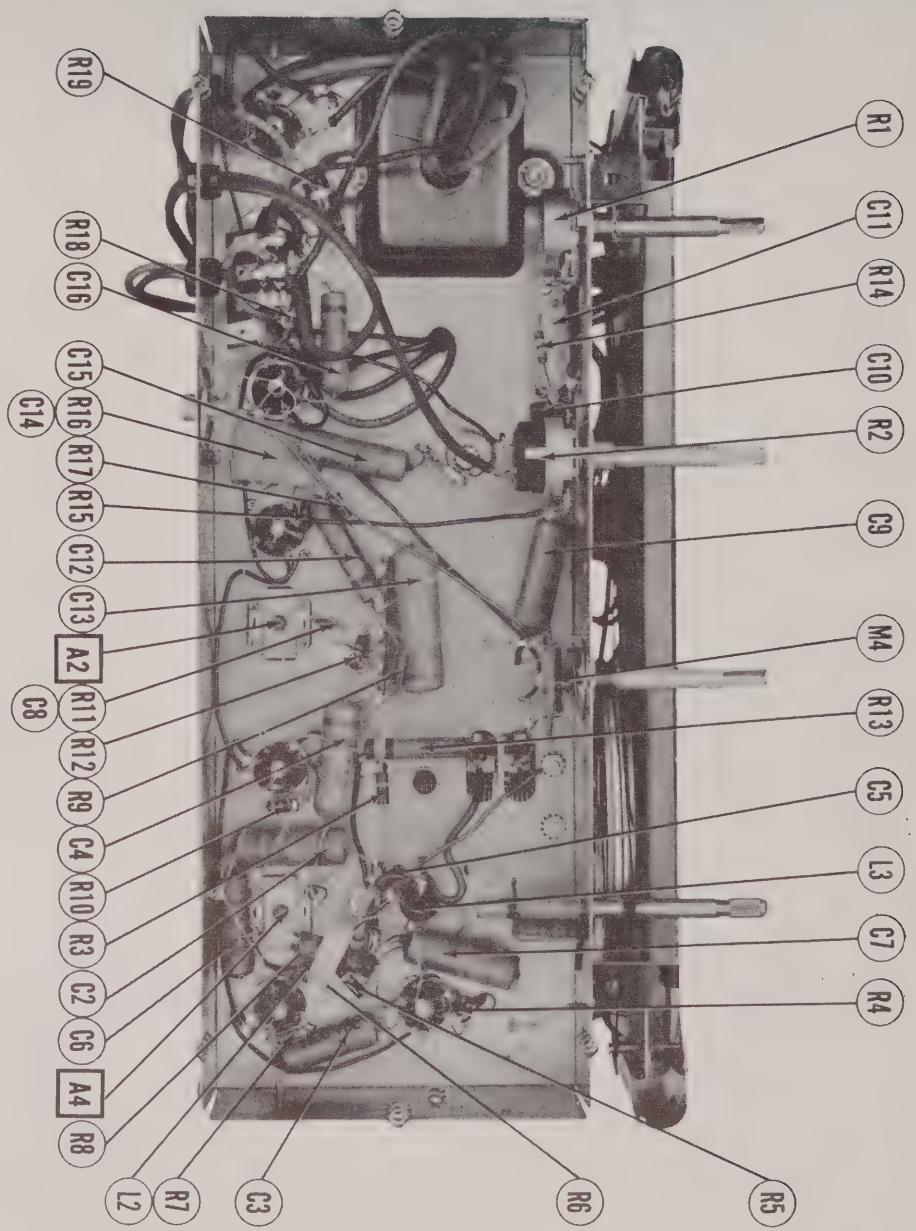
MISCELLANEOUS

ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M4	Switch	2A405	Radio-Phono (25-574MMF, 14-452MMF, 15-199MMF)
M5	3 Gang Var. Cap	14A213	
	Knob	10A759	
	Dial Pointer	15X251	
	Dial Glass	58X740	

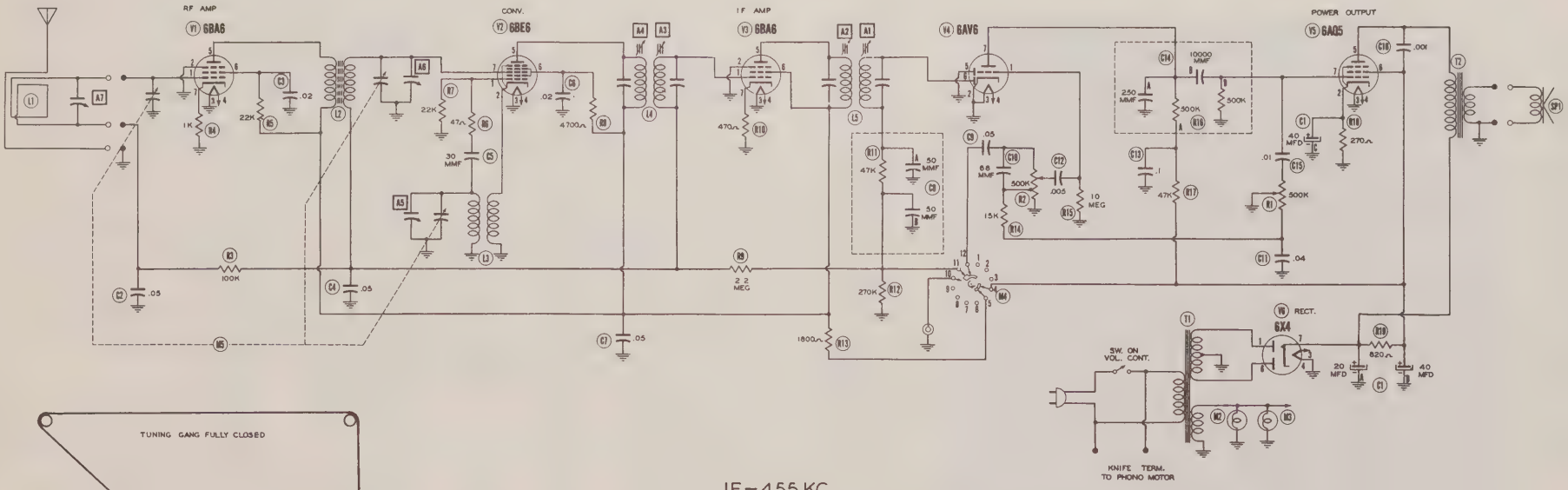
SET 119
FOLDER 7

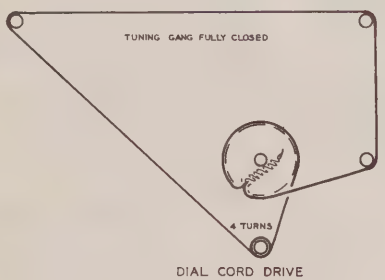
FIRESTONE
MODEL 4-A-87

CHASSIS—BOTTOM VIEW



FIRESTONE
MODEL 4-A-87





DIAL CORD DRIVE

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	-.3VDC	0V	0V	6.3VAC	120VDC	90VDC	4VDC
V 2	6BE6	4-5.3VDC	0V	0V	6.3VAC	120VDC	95VDC	-.2VDC
V 3	6BA6	-.2VDC	0V	0V	6.3VAC	120VDC	120VDC	3.3VDC
V 4	6AV6	-.6VDC	0V	0V	6.3VAC	0V	-.4VDC	86VDC
V 5	6AQ5	0V	6.6VDC	0V	6.3VAC	180VDC	150VDC	0V
V 6	6X4	160VAC	0V	6.3VAC	0V	0V	160VAC	170VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2.6 Meg.	0Ω	0Ω	.1Ω	†2.6MΩ	†25KΩ	1KΩ
V 2	6BE6	22KΩ	.6Ω	0Ω	.1Ω	†2.6KΩ	†7.8KΩ	2.5 Meg.
V 3	6BA6	2.5 Meg.	0Ω	0Ω	.1Ω	†2.6KΩ	†2.6KΩ	470Ω
V 4	6AV6	10 Meg.	0Ω	0Ω	.1Ω	0Ω	220KΩ	†250KΩ
V 5	6AQ5	500KΩ	270Ω	0Ω	.1Ω	†440Ω	†220Ω	500KΩ
V 6	6X4	120Ω	Inf.	.1Ω	0Ω	Inf.	130Ω	65KΩ

† MEASURED FROM PIN 7 OF V5

RADIO-PHONO SWITCH IN RADIO POSITION

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCEHMATIC
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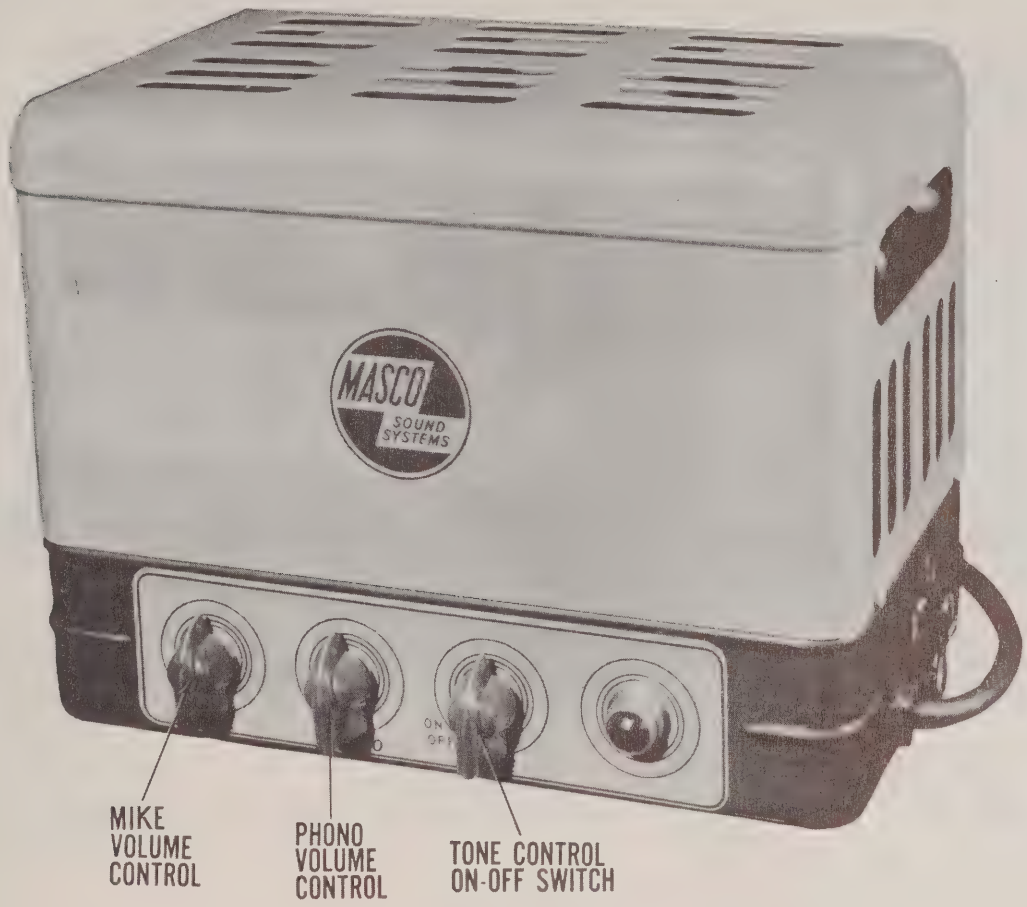
MASCO
MODEL MA-8N



MASCO
MODEL MA-8N

MASCO MODEL MA-8N

TRADE NAME	Masco, Model MA-8N
MANUFACTURER	Mark Simpson Mfg. Co., Inc., 32-28 49th St., Long Island City, New York
TYPE SET	AC Operated Audio Amplifier
TUBES (FOUR)	Types 6SF5 Mic. Pre Amp., 6SJ7 AF Amp., 6L6G Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-120 Volts AC RATING .62 Amp. at 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

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PARTS LIST AND DESCRIPTIONS

MASCO
MODEL MA-8N

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Mic. Pre Amp.	6SF5	6SF5	6AB	
V2	AF Amp	6SJ7	6SJ7	8 N	
V3	Power Output	6L6G	6L6G	7AC	
V4	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MASCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	16	450		PRS450/16		BR1645A		TVA-1708	Filter
C2	16	450		PRS450/16		BR1645A		TVA-1708	Filter
C3	8	450		PRS450/8		BR845A		TVA-1704	Decoupling
C4	8	450		PRS450/8		BR845A		TVA-1704	Mic. Pre Amp Dec.
C5	50	50		PRS50/50		BR505		TVA-1308	AF Amp. Cathode
C6	50	50		PRS50/50		BR505		TVA-1308	Bias Filter
C7	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C8	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C9	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	AF Amp. Screen
C10	.01	600		P688-01	D6-103	PTE6S1	811-01	6TM-S1	Audio Coupling
C11	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Tone Comp.

CONTROLS

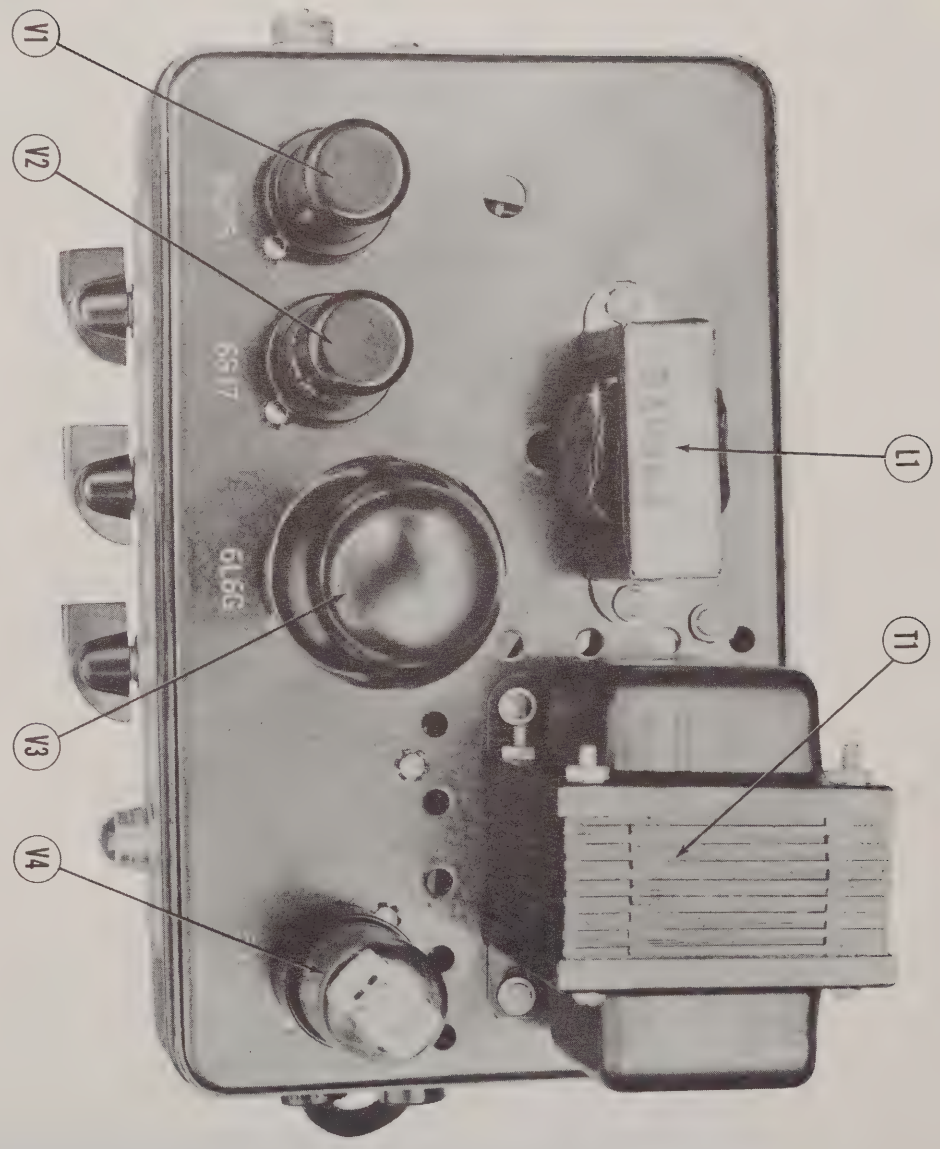
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	33-010-188	Q13-133	AM-60-Z	B-60	Mike Volume Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach To R1A Per Instructions.
R2A	500KΩ	½	33-010-188	Q13-133	AM-60-Z	B-60	Phono Volume Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach To R2A Per Instructions.
R3A	500KΩ	½	34-011-182	Q13-133	AM-60-Z	B-60-S	Tone Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach To R3A Per Instructions.
C	Switch		Not Req.	76-1	SW-A	Not Req.	Attach To R3A Per Instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	IDENTIFICATION CODES
R4	15Meg	½		BTS-15Meg	Mike Pre Amp. Grid
R5	270KΩ	½		BTS-270K	Mike Pre Amp. Plate - See Note 1
R6	270KΩ	½		BTS-270K	AF Amp. Grid - See Note 1
R7	270KΩ	½		BTS-270K	AF Amp. Grid - See Note 1
R8	1500Ω	½		BTS-1500	AF Amp. Cathode
R9	1Meg	½		BTS-1Meg	AF Amp. Screen
R10	270KΩ	½		BTS-270K	AF Amp. Plate - See Note 1
R11	27KΩ	½		BTS-27K	Decoupling
R12	270KΩ	½		BTS-270K	Tone Compensation - See Note 2
R13	200Ω	10			Output Cathode - Wire Wound - See Note 2
R14	1 Meg	½		BTS-1Meg	Feedback
R15	5000Ω	1		BTA-5000	Filter
R16	18Ω	1		BW-1-18	Hum Balancing
R17	18Ω	1		BW-1-18	Hum Balancing

Note 1. Some Models Use 250KΩ Resistor In This Application.
Note 2. Not Used In All Models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ⓐ .62A	660 VCT .081ADC	5VAC ⓐ 2A	6.3VAC ⓐ 2.1A	P-8	PC-8409 ① ②	P-3152 ①	PV-90 ①

① Drill New Mtg. Holes.
② Add Series Resistor To Reduce Plate Voltage.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	3800Ω	150Ω Tapped ⓐ 4Ω, 8Ω	150Ω	35Ω Tapped ⓐ .43Ω .7Ω	T-8				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∽)	MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.078A	130Ω	3.2H	C-178	C-2303 ②	C-2974 ②	R-885 ②	② Mount On Chassis.

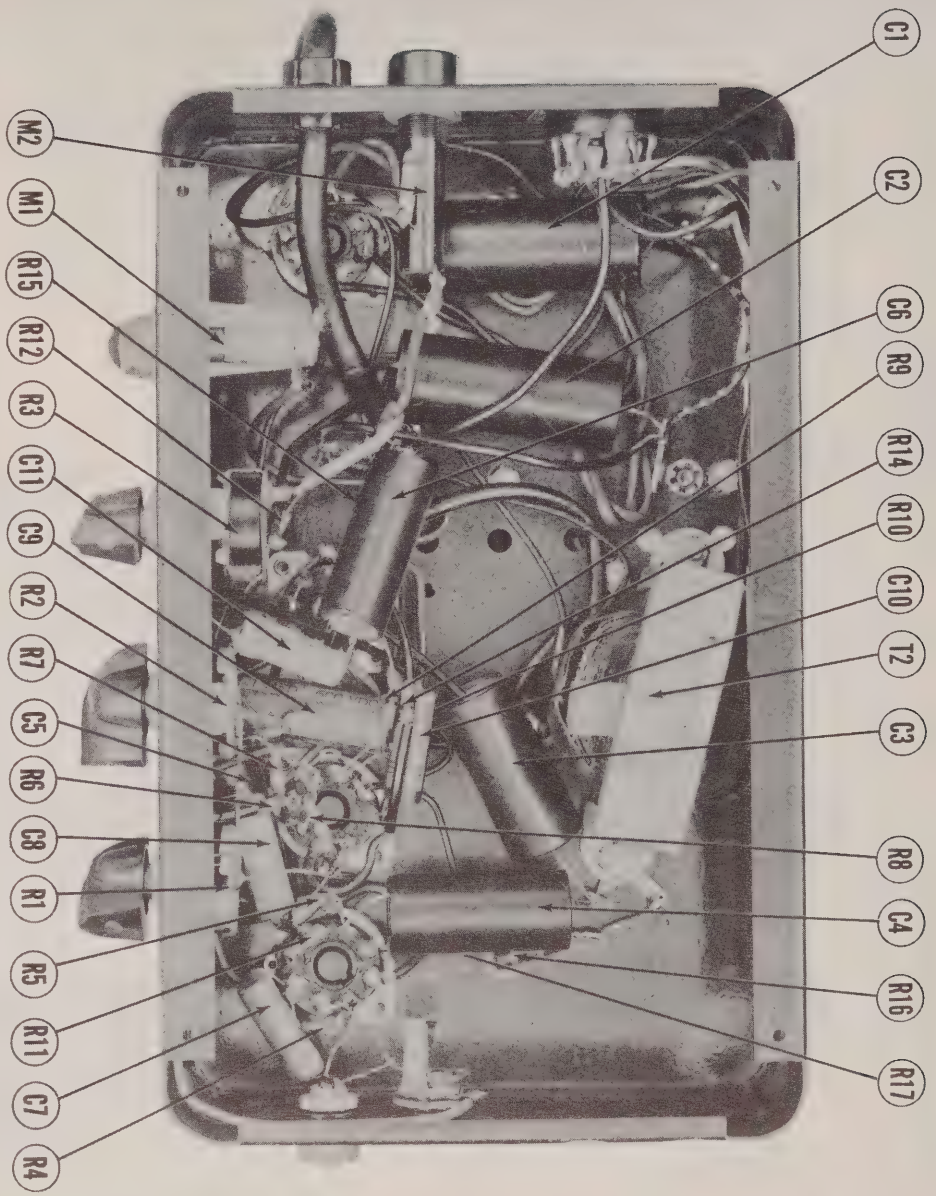
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MASCO PART No.		
M1	Bayonet	6-8	.15	Brown			Type Number 47

MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
M2	Fuse		1 Amp. 250V Type 3AG

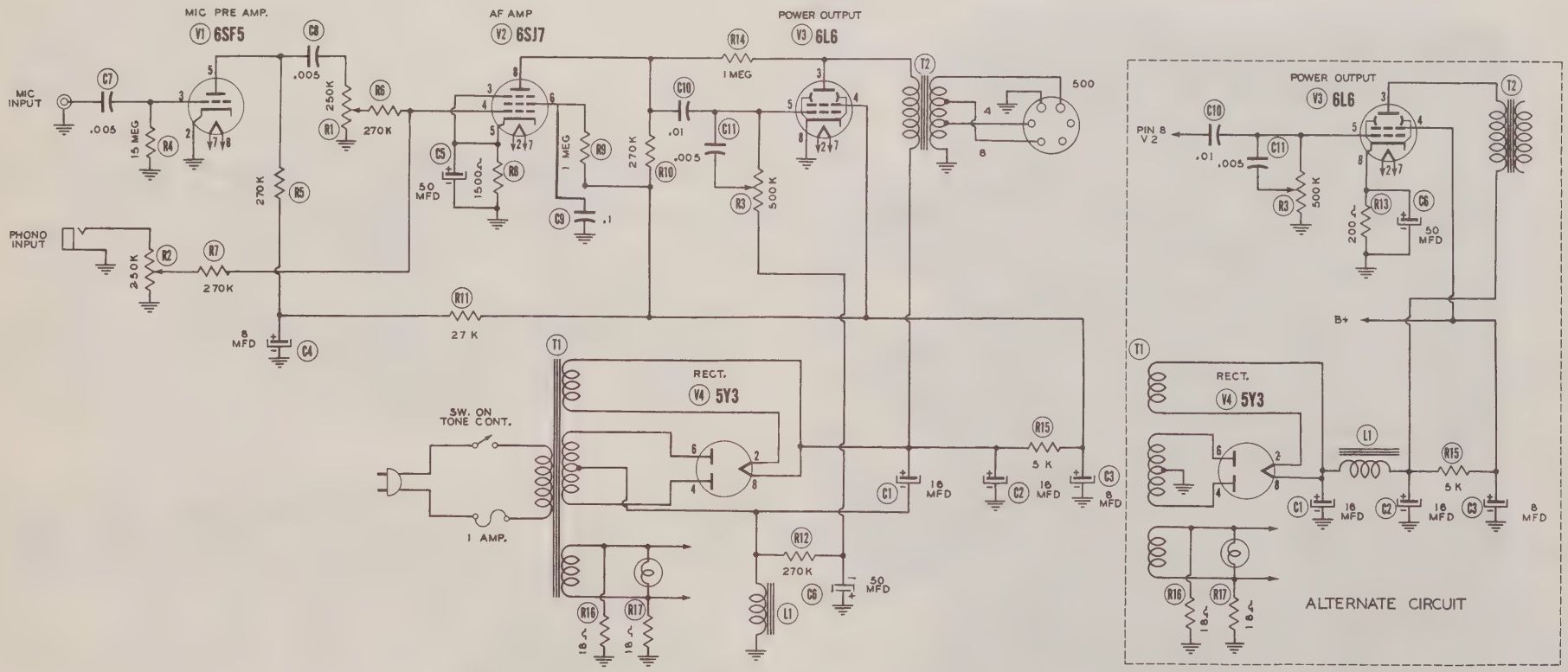
CHASSIS—BOTTOM VIEW



SET 119 FOLDER 8

MASCO MODEL MA-8N

MASCO MODEL MA-8N



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SF5	0V	0V	-.7VDC	265VDC	100VDC	250VDC	¶	¶
V 2	6SJ7	0V	¶	1.8VDC	0V	1.8VDC	42VDC	¶	80VDC
V 3	6L6G	0V	¶	280VDC	265VDC	-6.6VDC	265VDC	¶	0V
V 4	5Y3GT	0V	295VDC	0V	280VAC	0V	280VAC	0V	295VDC

¶ 6.3 VAC MEASURED ACROSS FILAMENTS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SF5	0Ω	0Ω	15Meg	†5KΩ	†300KΩ	†32KΩ	9Ω	9Ω
V 2	6SJ7	0Ω	9Ω	1.5KΩ	135KΩ	1.5KΩ	†1Meg	9Ω	†240KΩ
V 3	6L6G	0Ω	9Ω	†150Ω	†5KΩ	700KΩ	†5KΩ	9Ω	0Ω
V 4	5Y3GT	Inf.	100KΩ	Inf.	500Ω	Inf.	500Ω	Inf.	100KΩ

† MEASURED FROM PIN 2 OF V4

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCEHMATIC

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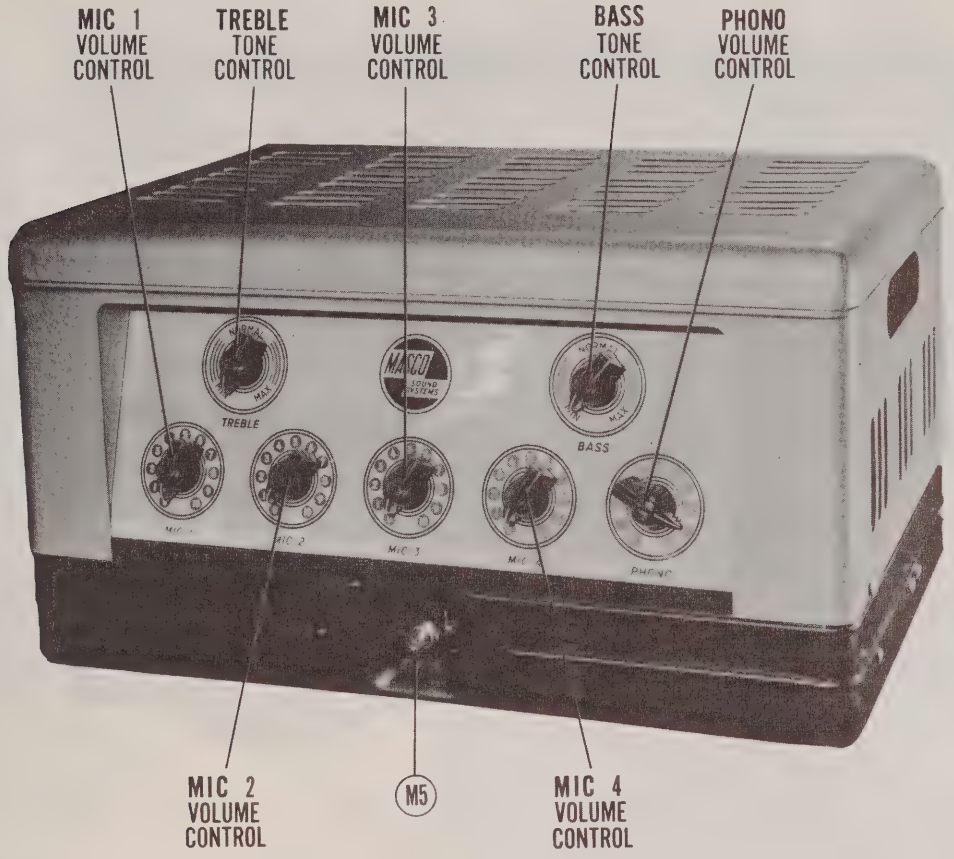
1. DC Voltage measurements are at 20, 000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.



MASCO MODEL MA-60

TRADE NAME	Masco, Model MA-60
MANUFACTURER	Mark Simpson Mfg. Co., Inc., 32-28 49th St., Long Island City 3, New York
TYPE SET	AC Operated Audio Amplifier
TUBES (TWELVE)	Types 6J7 1st Mic. Pre Amp., 6J7 2nd Mic. Pre Amp., 6J7 3rd Mic. Pre Amp., 6J7 4th Mic. Pre Amp., 6SC7 1st AF Amp.-Mixer, 6SJ7 2nd AF Amp., 6SL7 3rd AF Amp.-Phase Inverter, 6SN7GT Driver, (2) 807 Driver, 5Y3GT Rectifier, 5R4GY Rectifier
POWER SUPPLY	105-125 Volts AC

MASCO
MODEL MA-60

MASCO
MODEL MA-60

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

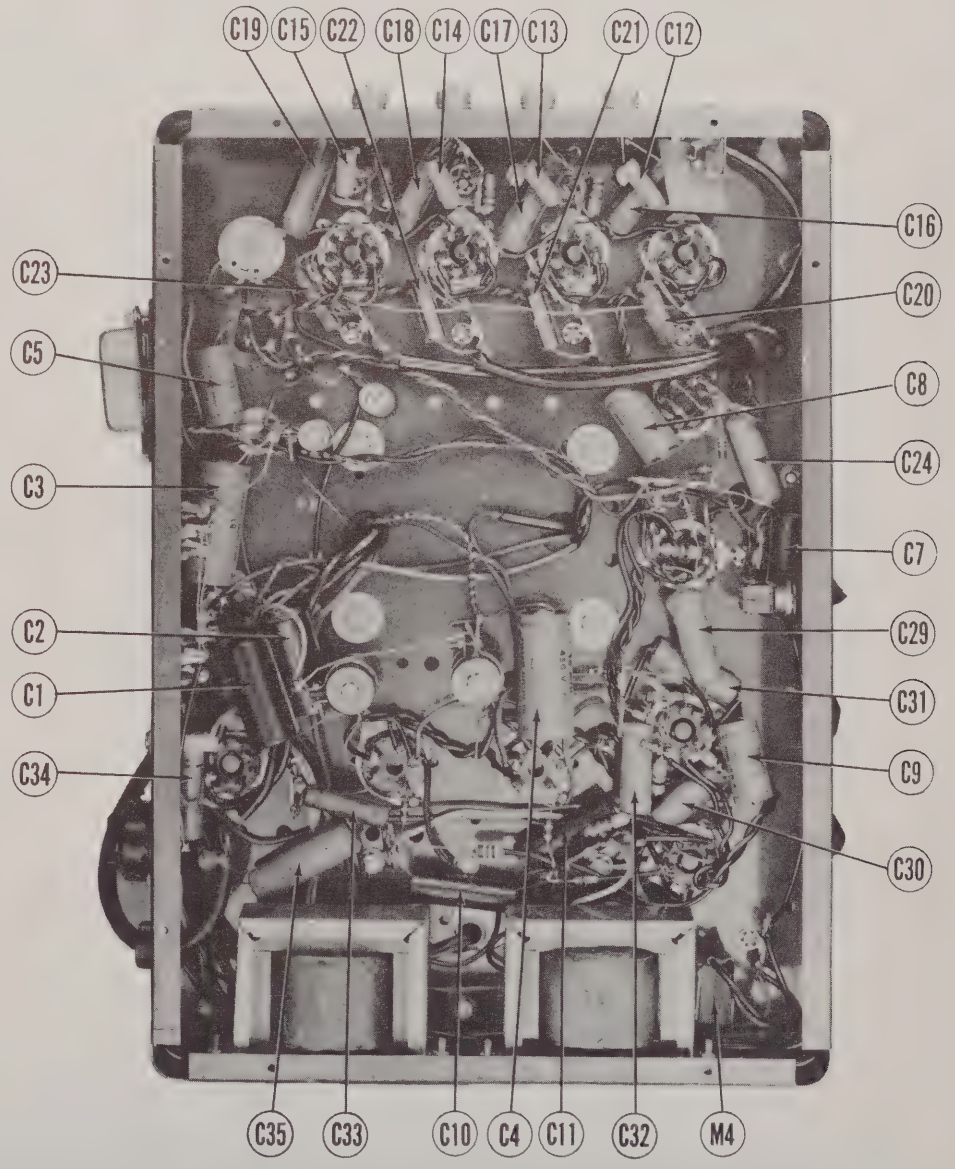
ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		MASCO PART No.	STANDARD REPLACEMENT		
V1	1st Mic. Pre Amp.	6J7	6J7	7R	
V2	2nd Mic. Pre Amp.	6J7	6J7	7R	
V3	3rd Mic. Pre Amp.	6J7	6J7	7R	
V4	4th Mic. Pre Amp.	6J7	6J7	7R	
V5	1st AF Amp-Mixer	6SC7	6SC7	8S	
V6	2nd AF Amp	6SJ7	6SJ7	8N	
V7	3rd AF Amp.-Phase Inverter	6SL7	6SL7	8BD	
V8	Driver	6SN7GT	6SN7GT	8BD	
V9	Power Output	807	807		
V10	Power Output	807	807		
V11	Rectifier	5Y3G	5Y3G	5T	
V12	Rectifier	5R4GY	5R4GY	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MASCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1	8	450		PRS450/8		BR845A		TVA-1704	Filter
C2	8	450		PRS450/8		BR845A		TVA-1704	Filter
C3	16	450		PRS450/16		BR1645A		TVA-1708	Filter
C4	16	450		PRS450/16		BR1645A		TVA-1708	Filter
C5	50	50		PRS50/50		BR505		TVA-1308	Bias Filter
C6 A	10	450		AF2222J		UP11145		TVL-4760	▲Decoupling
B	10	450							■Decoupling
C	10	450							▲Decoupling
C7	8	450		PRS450/8		BR845A		TVA-1704	Decoupling
C8	50	50		PRS50/50		BR505		TVA-1308	1st AF Amp.-Mixer Cathode
C9	50	50		PRS50/50		BR505		TVA-1308	3rd AF Amp. Cathode
C10	10	50		PRS50/10		BR105		TVA-1304	Driver Cathode
C11	10	50		PRS50/10		BR105		TVA-1304	Driver Cathode
C12	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C13	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C14	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C15	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C16	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	1st Mic. Pre-Amp. Screen
C17	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	2nd Mic. Pre-Amp. Screen
C18	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	3rd Mic. Pre-Amp. Screen.
C19	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	4th Mic. Pre-Amp. Screen
C20	.01	600		P688-01	D6-103	PTE6S1	811-01	6TM-S1	Audio Coupling
C21	.01	600		P688-01	D6-103	PTE6S1	811-01	6TM-S1	Audio Coupling
C22	.01	600		P688-01	D6-103	PTE6S1	811-01	6TM-S1	Audio Coupling
C23	.01	600		P688-01	D6-103	PTE6S1	811-01	6TM-S1	Audio Coupling
C24	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C25	.001	600		P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Tone Comp.
C26	.01	600		P688-01	D6-103	PTE6S1	811-01	6TM-S1	Tone Comp.
C27	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Tone Comp.
C28	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Tone Comp.
C29	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C30	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C31	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C32	.05	600		P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C33	.01	600		P688-01	D6-103	PTE6S1	811-01	6TM-S1	Tone Comp.
C34	.02	600		P688-02	DF-203	PTE6S2		6TM-S2	Tone Comp.
C35	.1	600		P688-1	DF-104	PTE6P1		6TM-P1	Line Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

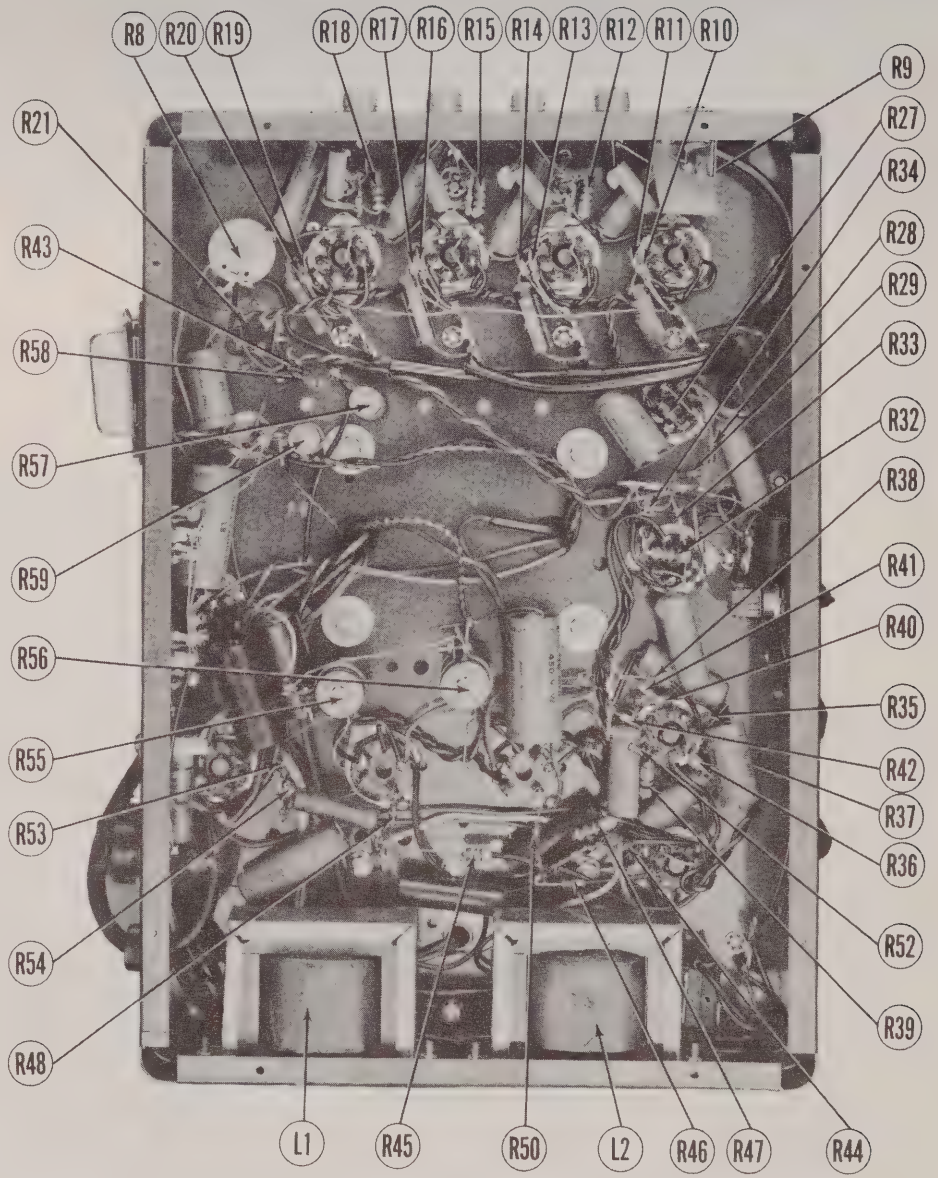
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	MASCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	33-010-188	Q13-133	AM-60-Z	B-60	Mike 1 Volume Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach To R1A Per Instructions.
R2A	500KΩ	½	33-010-188	Q13-133	AM-60-Z	B-60	Mike 2 Volume Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach To R2A Per Instructions.
R3A	500KΩ	½	33-010-188	Q13-133	AM-60-Z	B-60	Mike 3 Volume Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach To R3A Per Instructions.
R4A	500KΩ	½	33-010-188	Q13-133	AM-60-Z	B-60	Mike 4 Volume Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach To R4A Per Instructions.
R5A	500KΩ	½	33-010-188	Q13-133	AM-60-Z	B-60	Phono Volume Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach To R5A Per Instructions.
R6A	500KΩ	½	33-010-188	Q13-133	AM-60-Z	B-60	Treble Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach To R6A Per Instructions,
R7A	500KΩ	½	33-010-188	Q13-133	AM-60-Z	B-60	Bass Control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach To R7A Per Instructions.
R8	50Ω	1			* 43-50		Hum Balancing - Wire Wound

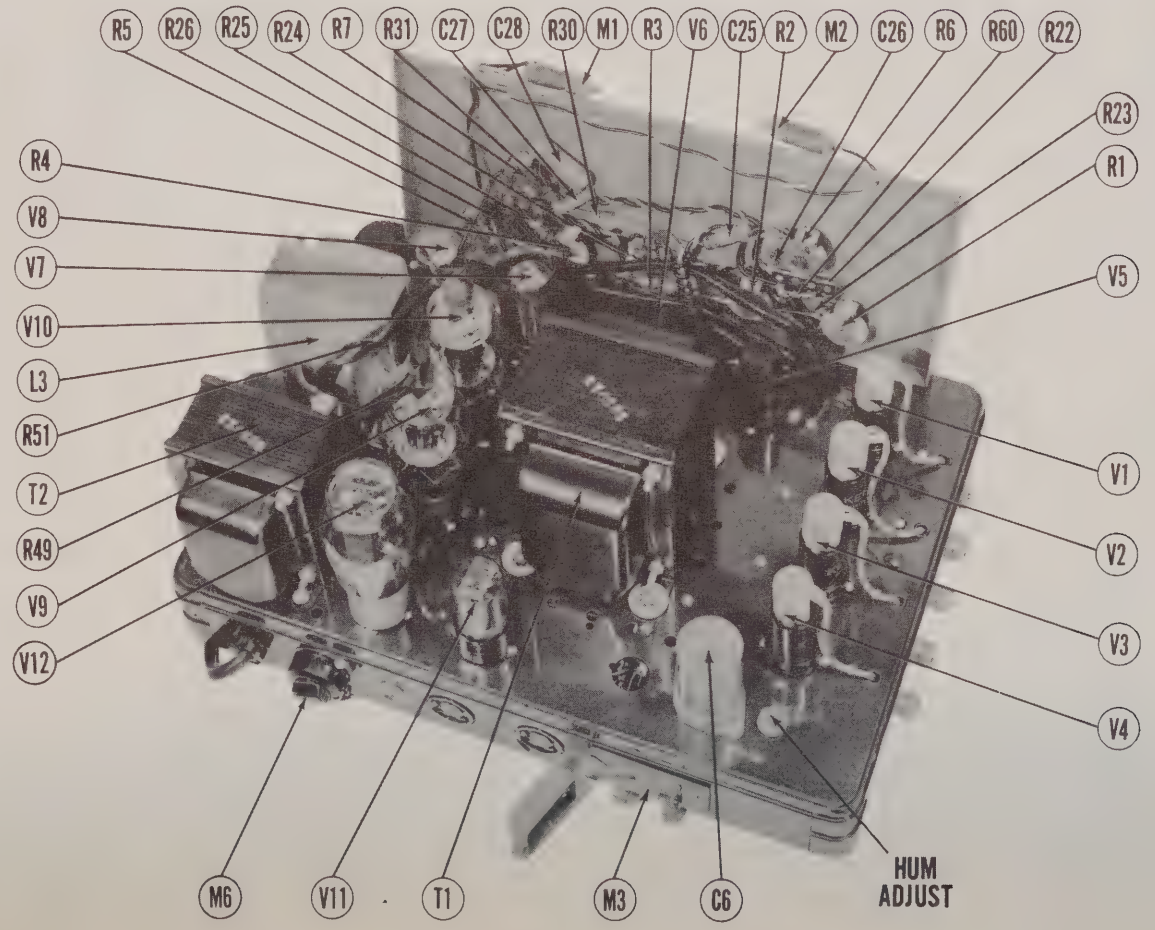
*Fashion Shaft To Duplicate Original.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	
R9	15Meg	½		BTS-15Meg	1st Mike Pre-Amp. Grid
R10	1Meg	½		BTS-1Meg	1st Mike Pre-Amp Screen
R11	240KΩ	½		BTS-270K	1st Mike Pre-Amp Plate - See Note 1.
R12	15Meg	½		BTS-15Meg	2nd Mike Pre-Amp Grid
R13	1Meg	½		BTS-1Meg	2nd Mike Pre-Amp Screen
R14	240KΩ	½		BTS-270K	2nd Mike Pre-Amp Plate - See Note 1.
R15	15 Meg	½		BTS-15Meg	3rd Mike Pre-Amp Grid
R16	1Meg	½		BTS-1Meg	3rd Mike Pre-Amp Screen
R17	240KΩ	½		BTS-270K	3rd Mike Pre-Amp Plate - See Note 1.
R18	15Meg	½		BTS-15Meg	4th Mike Pre-Amp Grid
R19	1Meg	½		BTS-1Meg	4th Mike Pre-Amp Screen
R20	240KΩ	½		BTS-270K	4th Mike Pre-Amp Plate - See Note 1
R21	47KΩ	½		BTS-47K	Decoup.
R22	470KΩ	½		BTS-470K	Isolation
R23	470KΩ	½		BTS-470K	Isolation
R24	470KΩ	½		BTS-470K	Isolation
R25	470KΩ	½		BTS-470K	Isolation
R26	470KΩ	½		BTS-470K	Isolation
R27	470Ω	½		BTS-470K	1st AF Amp-Mixer Cathode
R28	47KΩ	½		BTS-47K	1st AF Amp-Mixer Plate
R29	10KΩ	½		BTS-10K	1st AF Amp-Mixer Decoup.
R30	100KΩ	½		BTS-100K	Tone Compensation
R31	10KΩ	½		BTS-10K	2nd AF Amp Grid
R32	1500Ω	½		BTS-1500	2nd AF Amp Cathode
R33	47KΩ	½		BTS-47K	2nd AF Amp Plate
R34	12KΩ	½		BTS-12K	Decoup.
R35	470KΩ	½		BTS-470K	3rd AF Amp Grid
R36	470Ω	½		BTS-470	3rd AF Amp Cathode
R37	3000Ω	½		BTS-3300	3rd AF Amp Cathode
R38	270KΩ	½		BTS-270K	3rd AF Amp Plate
R39	40KΩ	½		BTS-39K	Phase Inverter Grid
R40	3600Ω	½			Phase Inverter Cathode
R41	270KΩ	½		BTS-270K	Phase Inverter Plate
R42	1Meg	½		BTS-1Meg	Voltage Divider
R43	12KΩ	1		BTA-12K	Decoup.
R44	1Meg	½		BTS-1Meg	Driver Grid
R45	1500Ω	½		BTS-1500	Driver Cathode
R46	1Meg	½		BTS-1Meg	Driver Grid
R47	1500Ω	½		BTS-1500	Driver Cathode
R48	18Ω	½			Parasitic Supp
R49	18Ω	1			Parasitic Supp
R50	18Ω	½			Parasitic Supp
R51	18Ω	1			Parasitic Supp
R52	47KΩ	½		BTS-47K	Feedback
R53	47KΩ	½		BTS-47K	Booster Input Shunt
R54	470KΩ	½		BTS-470K	Tone Compensation
R55	20KΩ	25		2½DA-20K	Bleeder - Wire Wound
R56	20KΩ	25		2½DA-20K	Bleeder - Wire Wound

CHASSIS—BOTTOM VIEW




R5
R26
R25
R24
R7
R31
C27
C28
R30
M1
R3
V6
C25
R2
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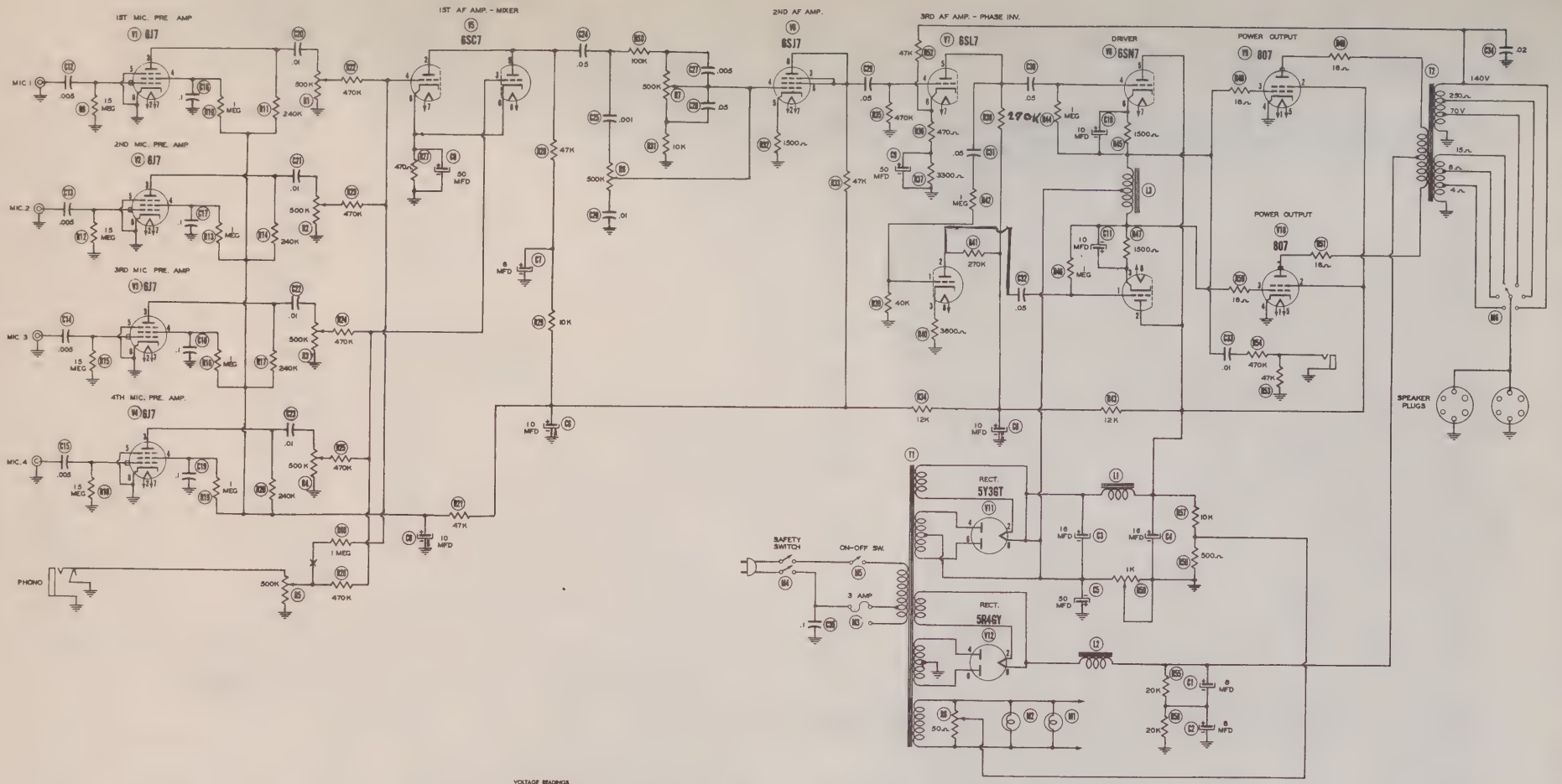
C26
R6
R60
R22
R23
R1
V5
V1
V2
V3
V4
R4
V8
V7
V10
L3
R51
T2
R49
V9
V12
M6
V11
T1
M3
C6
HUM
ADJUST



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J7	0V	†	1.7VDC	30VDC	0V	0V	†	0V	TOP CAP -.7VDC
V 2	6J7	0V	†	1.7VDC	30VDC	0V	0V	†	0V	TOP CAP -.7VDC
V 3	6J7	0V	†	1.7VDC	30VDC	0V	0V	†	0V	TOP CAP -.7VDC
V 4	6J7	0V	†	1.7VDC	30VDC	0V	0V	†	0V	TOP CAP -.7VDC
V 5	6SC7	0V	85VDC	-.1VDC	-.1VDC	80VDC	.7VDC	†	†	
V 6	6SJ7	0V	†	70VDC	0V	3VDC	70VDC	†	70VDC	
V 7	6SL7GT	0V	105VDC	1.6VDC	0V	105VDC	1.6VDC	†	†	
V 8	6SN7GT	-4.2VDC	300VDC	-11VDC	-4.2VDC	300VDC	-11VDC	†	†	
V 9	807	†	300VDC	-23VDC	0V	†	TOP CAP 445VDC			
V 10	807	†	300VDC	-23VDC	0V	†	TOP CAP 445VDC			
V 11	5Y3GT	0V	320VDC	310VDC	275VAC	0V	275VAC	0V	320VAC	
V 12	5R4GY	0V	480VDC	0V	360VAC	0V	360VAC	0V	480VDC	

† 6.3VAC MEASURED ACROSS FILAMENTS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J7	0Ω	500Ω	†310Ω	†1 Meg.	0Ω	Inf.	500Ω	0Ω	TOP CAP 15 Meg.
V 2	6J7	0Ω	500Ω	†310Ω	†1 Meg.	0Ω	Inf.	500Ω	0Ω	TOP CAP 15 Meg.
V 3	6J7	0Ω	500Ω	†310Ω	†1 Meg.	0Ω	Inf.	500Ω	0Ω	TOP CAP 15 Meg.
V 4	6J7	0Ω	500Ω	†310Ω	†1 Meg.	0Ω	Inf.	500Ω	0Ω	TOP CAP 15 Meg.
V 5	6SC7	0Ω	†80KΩ	160KΩ	200KΩ	†80KΩ	500Ω	500Ω	500Ω	
V 6	6SJ7	0Ω	500Ω	†70KΩ	10KΩ	1.5KΩ	†70KΩ	500Ω	†70KΩ	
V 7	6SL7GT	40KΩ	†260Ω	3.6KΩ	[illegible]	†260Ω	3.6KΩ	500Ω	500Ω	
V 8	6SN7GT	1 Meg.	†120Ω	2.1KΩ	1 Meg.	†120Ω	2.1KΩ	500Ω	500Ω	
V 9	807	500Ω	†120Ω	800Ω	0Ω	500Ω	TOP CAP #1150			
V 10	807	500Ω	†120Ω	800Ω	0Ω	500Ω	TOP CAP #1150			
V 11	5Y3GT	Inf.	10KΩ	20KΩ	700Ω	Inf.	700Ω	Inf.	10KΩ	
V 12	5R4GY	Inf.	40KΩ	Inf.	300	Inf.	300	Inf.	40KΩ	

† MEASURED FROM PIN 8 OF V11
ϕ MEASURED FROM PIN 8 OF V12

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20, 000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are fom socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage reading.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

PHOTOFACT* Folder

*TRADE MARK

NATIONAL MODELS
TV-1201, TV-1226, TV-1601, TV-1625

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Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL TV-1601

NATIONAL MODELS
TV-1201, TV-1226, TV-1601, TV-1625

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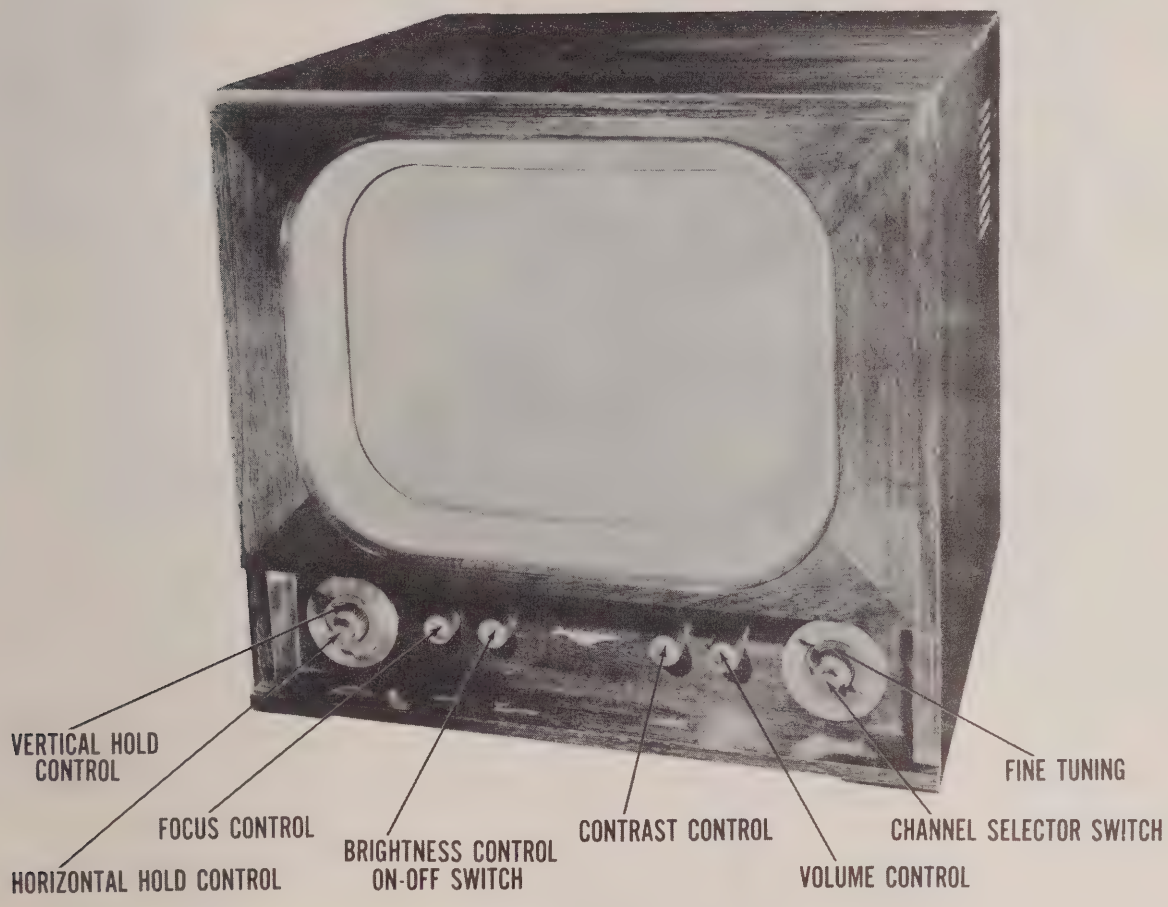
Date 1/51 Set No. 119—Folder No. 10

NATIONAL MODELS
TV-1201, TV-1226, TV-1601, TV-1625



NATIONAL MODELS
TV-1201, TV-1226, TV-1601, TV-1625

NATIONAL MODEL TV- 1601

TRADE NAME	National, Models TV-1201, TV-1226, TV-1601, TV-1625
MANUFACTURER	The National Co., Inc., Malden, Mass.
TYPE SET	Television Receiver
TUBES	Twenty-Three
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.8 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 Thru 13

INDEX

Alignment Instructions 6,7
Disassembly Instructions 7
Horizontal Sweep Circuit Adjustments 11
Parts List And Description 12, 13, 14
Photographs
Cabinet- Rear View 11
Capacitor And Alignment Identification 4, 9
Photographs (Continued)
Chassis - Top View 3
RF Tuner 10
Resistor And Inductor Identification 15, 16
Schematic 2
Tube Placement Chart 5
Voltage And Resistance Measurements 8

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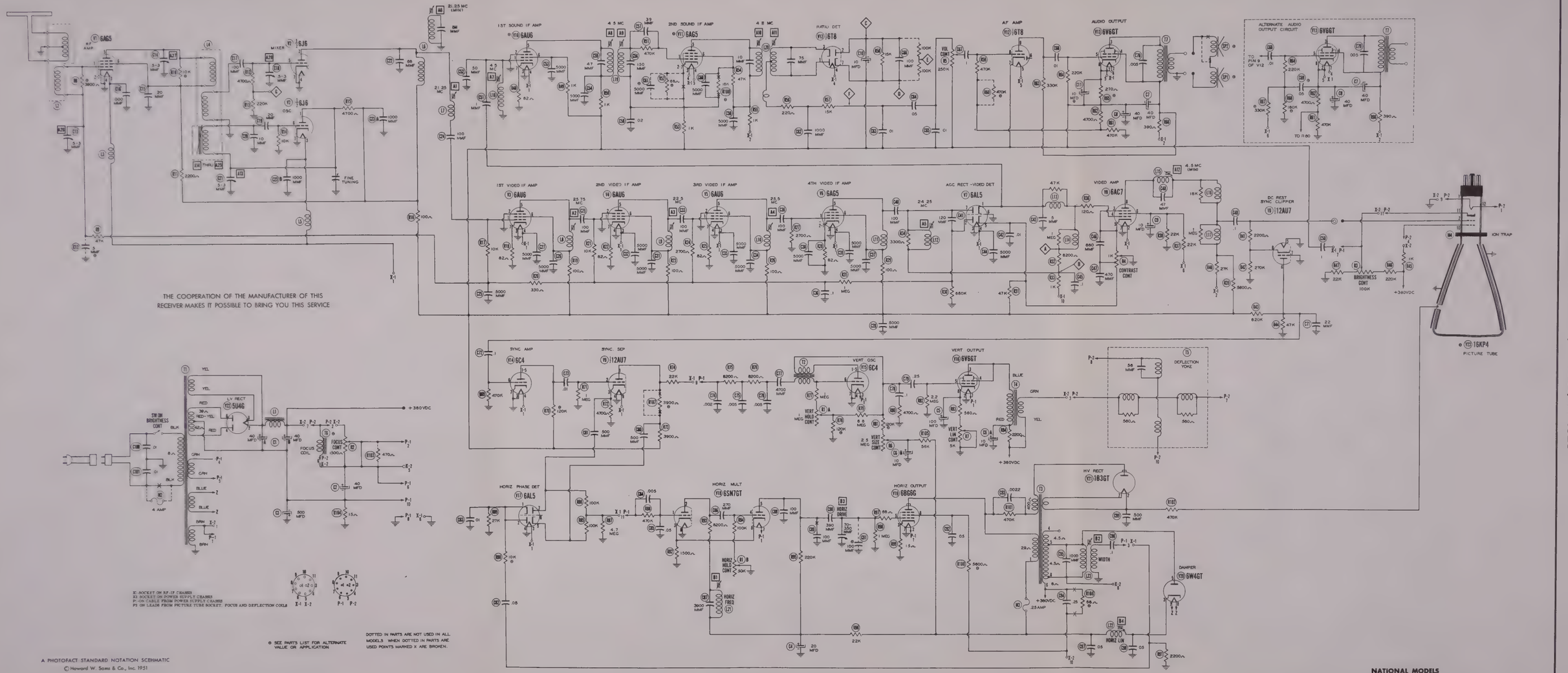
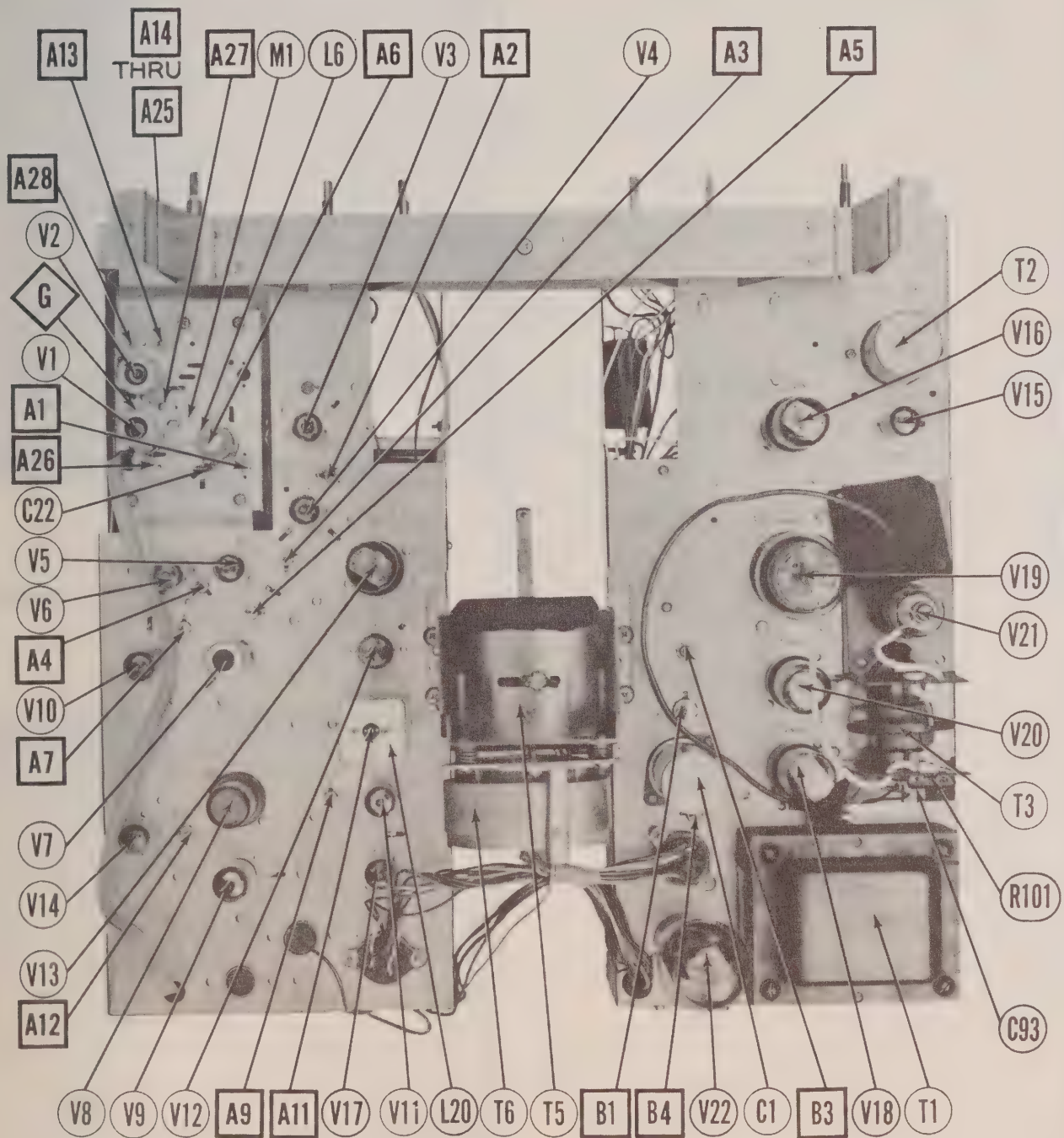
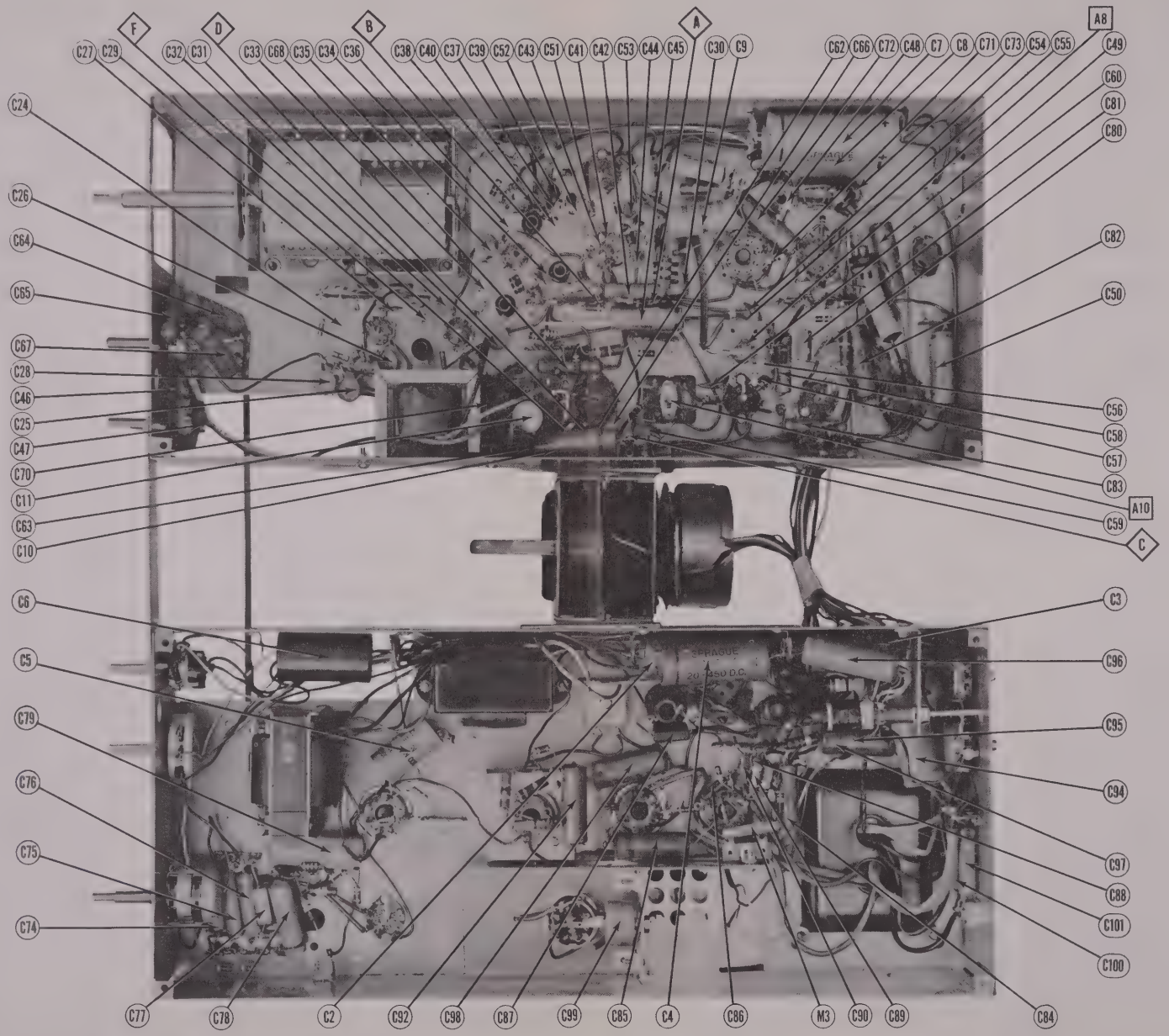


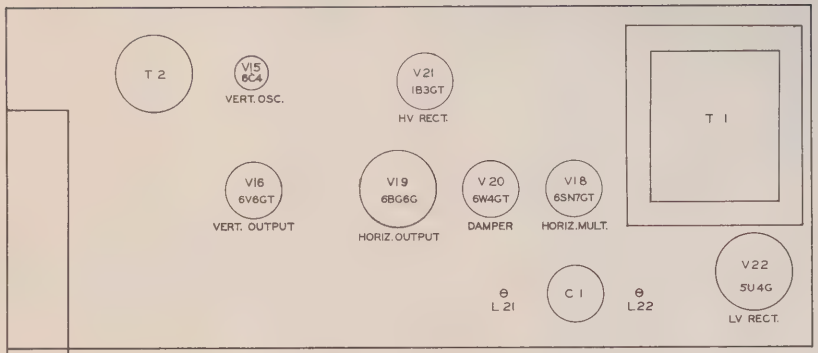
NATIONAL MODELS
TV-1201, TV-1226, TV-1601, TV-1625



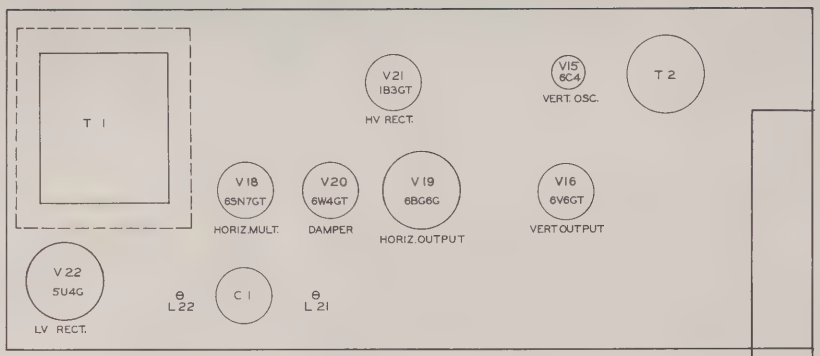
CHASSIS TOP VIEW



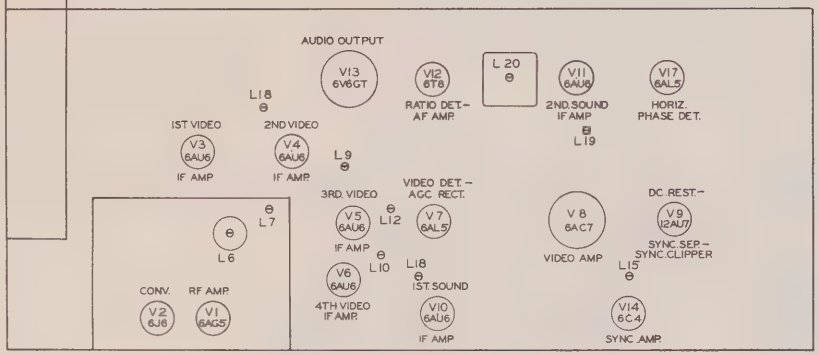
CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

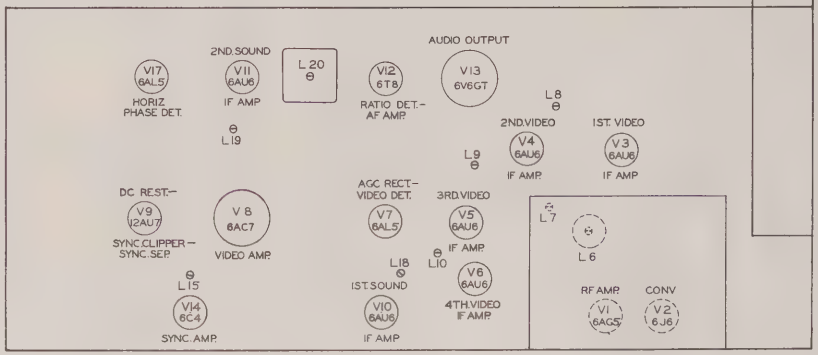


TOP VIEW



BOTTOM VIEW





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If the set is to be aligned with the picture tube removed, the end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube or the horizontal output tube.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.

Connect the negative lead of a 2 volt source, (from a battery), to the junction of R35 and C30, connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	22.25MC (Unmod.)	Any	DC Probe to Point (A). Common to Point (B).	A1	Adjust for maximum deflection.
2.	Direct	"	25.75MC	"	"	A2	"
3.	Direct	"	22.5MC	"	"	A3	"
4.	Direct	"	25.5MC	"	"	A4	"
5.	Direct	"	24.25MC	"	"	A5	"
6.	Direct	"	21.25MC	"	"	A6	Adjust for MINIMUM deflection. Repeat step 1.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	24MC (10MC SWP)	21.25MC 25.75MC	Any	Vert. Amp. to Point (A). Low side to chassis.		Check afor response curve similar to figure 1. If necessary retouch A5. Do not retouch any other adjustment. If proper response cannot be obtained with A5 recheck Video IF Alignment.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect a matched pair of 100KΩ (±1%) resistors in series from Point C to Point D , the junction of these resistors is alignment Point E as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.05MFD	High side to pin 1 (cathode) of 6AL5 (V7). Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe to Point (C). Common to Point (D).	A7, A8, A9, A10	Adjust for maximum deflection.
9.	.05MFD	"	"	"	DC Probe to Point (E). Common to Point (D).	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.05MFD	High side to pin 1 (cathode) of 6AL5 (V7). Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. Amp. to Point (C). Low side to chassis.	A7, A8, A9, A10	Disconnect stabilizer capacitor C10. Adjust for maximum amplitude and symmetry as per figure 2.
9.	.05MFD	"	"	"	"	Vert. Amp. to Point (E). Low side to chassis.	A11	Reconnect capacitor C10. Adjust A-11 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ADJUSTMENT

Remove the sound IF Amplifier tube (V10) from its socket.

Connect a .005MFD capacitor between the picture tube grid lead plug and pin 5 of V10 socket.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.05MFD	High side to pin 1 (cathode) of 6AL5 (V7). Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe to Point (C). Common to Point (D).	A12	Adjust for MINIMUM deflection.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.

The overall oscillator trimmer screw (A13) should be set so the lower shoulder on the screw is 1/8 inch above the top of the mounting nut.

The oscillator adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in series with each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to Point (A). Low side to chassis.	A14	Adjust to place sound marker in "notch" as shown in figure 4. The video marker should be at 50%.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A15	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A16	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A17	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A18	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A19	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A20	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A21	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A22	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A23	
			63MC (10MC SWP)	61.25MC 65.76MC	3		A24	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A25	

ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

Connect the negative lead of a 1.5 volt battery to the junction of R17 and C25, connect the positive lead to chassis.
Connect a 10KΩ resistor in series with the escilloscope vertical input.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to Point (G). Low side to chassis.	A26, A27, A28	Adjust for response curve similar to figure 5 with markers above 90%.
13.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"		Check all channels for response curve similar to figure 5. If markers fall below 70% on any channel, make slight adjustment of A26, A27 and A28 with channel switch set for that channel. Recheck all channels to set that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

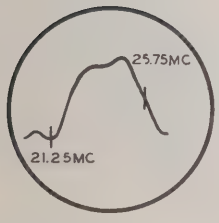


FIG. 1

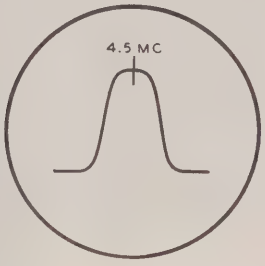


FIG. 2

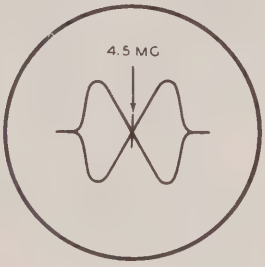


FIG. 3

FIG. 4

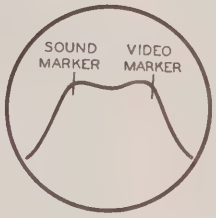


FIG. 5

DISASSEMBLY INSTRUCTIONS

1. Remove eight push-on type control knobs.
2. Remove four wood screws, and three 3 1/4" hex head metal screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect speakers.
5. Remove eight 5/16" hex head bolts from chassis. Remove chassis.
6. Remove two 11/32" hex nuts from each speaker. Remove speakers.

NOTE: FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-1VDC	0V	6.3VAC	0V	90VDC	90VDC	0V		
V 2	6J6	75VDC	100VDC	6.3VAC	0V	-1.9VDC	§-5.3VDC	0V		
V 3	6AU6	-.6VDC	0V	0V	6.3VAC	100VDC	100VDC	.7VDC		
V 4	6AU6	-.5VDC	0V	6.3VAC	0V	100VDC	100VDC	.7VDC		
V 5	6AU6	-.4VDC	0V	6.3VAC	0V	100VDC	100VDC	.7VDC		
V 6	6AG5	0V	.9VDC	0V	6.3VAC	100VDC	100VDC	.9VDC		
V 7	6AL5	-2.7VDC	-1.9VDC	0V	6.3VAC	0V	0V	-3.3VDC		
V 8	6AC7	0V	6.3VAC	1.2VDC	-2.7VDC	1.2VDC	170VDC	0V	150VDC	
V 9	12AU7	95VDC	0V	5.7VDC	0V	0V	5VDC	0V	1.2VDC	6.3VAC
V 10	6AU6	0V	0V	0V	6.3VAC	100VDC	100VDC	.9VDC		
V 11	6AU6	▲.9VDC	▲8VDC	¶	¶	▲255VDC	▲65VDC	▲8VDC		
V 12	6T8	▲-.4VDC	▲-.6VDC	▲-.4VDC	¶	¶	0V	▲0V	▲-.7VDC	▲90VDC
V 13	6V6GT	0V	¶	▲240VDC	▲255VDC	▲0V	0V	¶	▲14VDC	
V 14	6C4	6VDC	0V	0V	6.3VAC	6VDC	-1.8VDC	0V		
V 15	6C4	430VDC 130VDC	0V	6.3VAC	0V	430VDC 130VDC	-45VDC	0V		
V 16	6V6GT	0V	0V	340VDC	340VDC	2.6VDC	0V	6.3VAC	65VDC 20VDC	
V 17	6AL5	0V	0V	6.3VAC	0V	3.8VDC	0V	-3.4VDC		
V 18	6SN7GT	.3VDC	300VDC	13VDC	-9.6VDC	125VDC	13VDC	6.3VAC	0V	
V 19	6BG6G	0V	6.3VAC	2VDC	350VDC	-22VDC	0V	0V	350VDC	TOP CAP *
V 20	6W4GT	495VDC	340VDC	495VDC	0V	380VDC	0V	¶	¶	
V 21	1B3GT	* DO NOT MEASURE								
V 22	5U4G	0V	385VDC	0V	375VAC	0V	375VAC	0V	385VDC	
V 23	16KP4	0V	1.4VDC	PIN 10 370VDC	PIN 11 32VDC	PIN 12 6.3VAC				

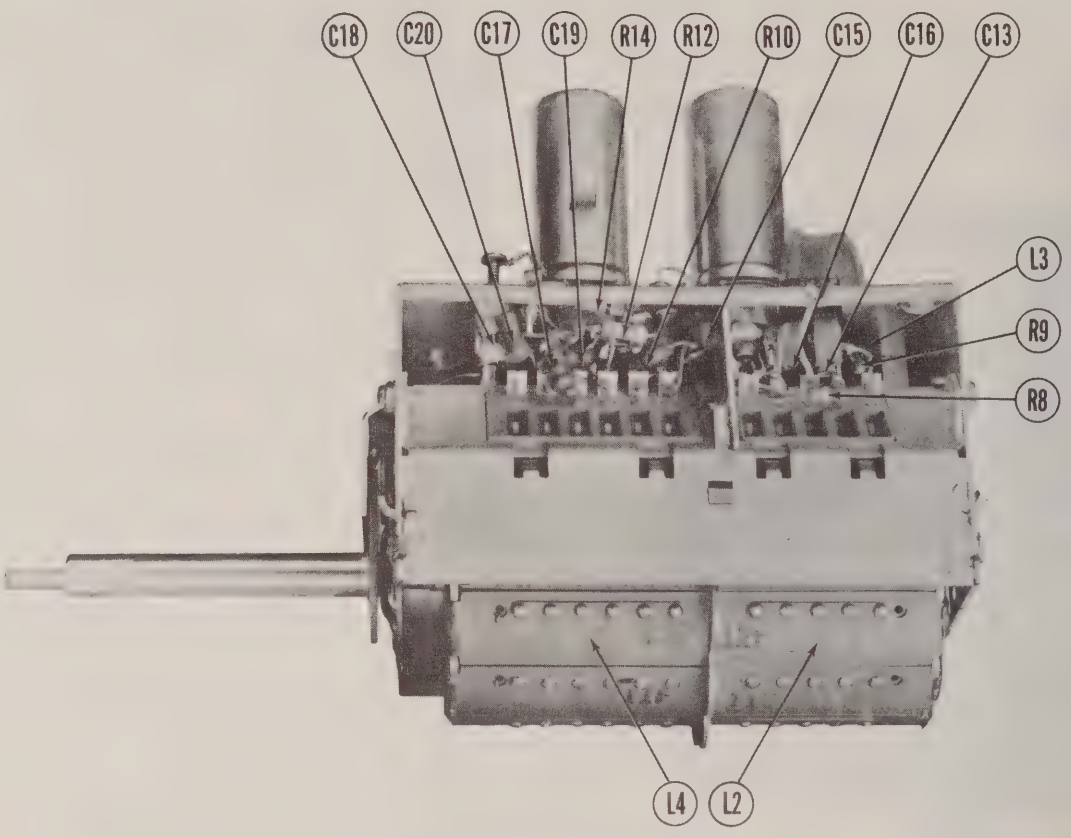
§ TAKEN WITH VACUUM TUBE VOLTMETER
▲ MEASURED FROM JUNCTION OF R62, R65 AND C11
¶ 6.3VAC MEASURED ACROSS FILAMENTS
* DO NOT MEASURE

RESISTANCE READINGS

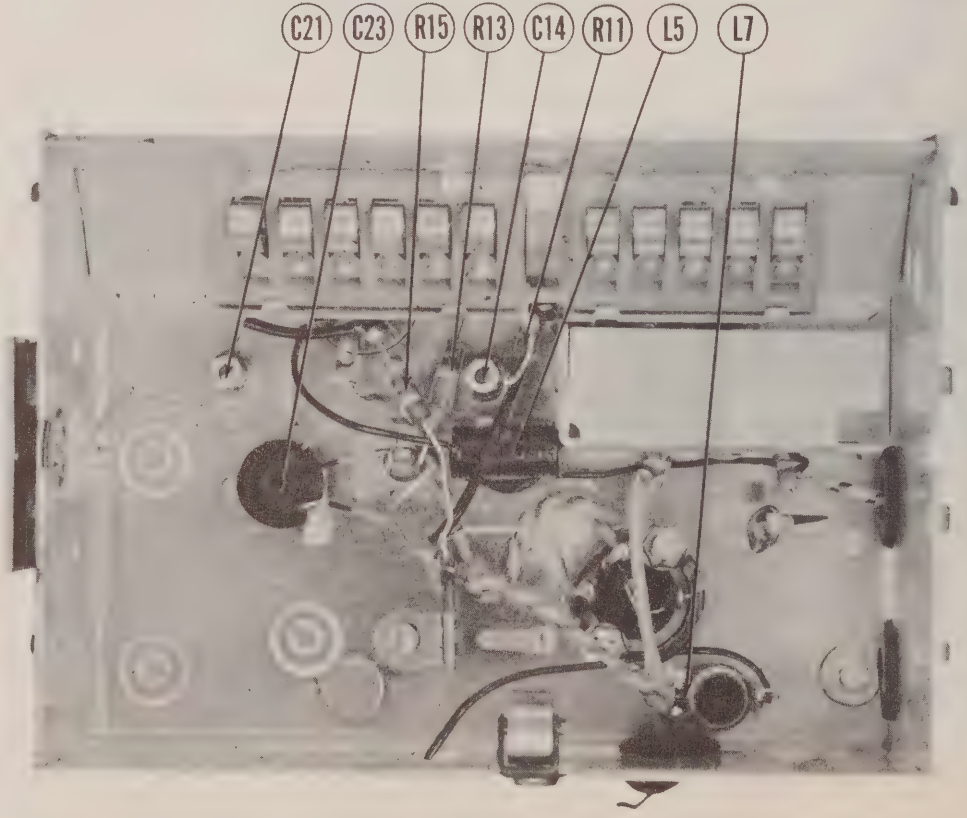
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	1.7 Meg.	0Ω	.1Ω	0Ω	▲2.3KΩ	▲2.3KΩ	0Ω		
V 2	6J6	▲4.8KΩ	▲100Ω	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6AU6	1.7 Meg.	0Ω	0Ω	.1Ω	▲100Ω	▲100Ω	82Ω		
V 4	6AU6	1.7 Meg.	0Ω	.1Ω	0Ω	▲100Ω	▲100Ω	82Ω		
V 5	6AU6	1.7 Meg.	0Ω	.1Ω	0Ω	▲100Ω	▲100Ω	82Ω		
V 6	6AG5	2.7KΩ	82Ω	0Ω	.1Ω	▲100Ω	▲100Ω	82Ω		
V 7	6AL5	9.2KΩ	680KΩ	0Ω	.1Ω	0Ω	0Ω	1KΩ		
V 8	6AC7	0Ω	.1Ω	1KΩ	9.3KΩ	1KΩ	†16KΩ	0Ω	▲5.6KΩ	
V 9	12AU7	▲7.8KΩ	1 Meg.	4.7 KΩ	0Ω	0Ω	▲70KΩ	0Ω	270KΩ	.1Ω
V 10	6AU6	1.7Ω	0Ω	0Ω	.1Ω	▲1KΩ	▲1KΩ	82Ω		
V 11	6AU6	▲470KΩ	▲1KΩ	▲270Ω	▲270Ω	†1KΩ	†25KΩ	▲1KΩ		
V 12	6T8	Inf.	▲15KΩ	Inf.	▲270Ω	▲270Ω	Inf.	▲0Ω	▲475KΩ	†330KΩ
V 13	6V6GT	Inf.	▲270Ω	†825Ω	†445Ω	▲220KΩ	Inf.	▲270Ω	▲270Ω	
V 14	6C4	▲120KΩ	Inf.	0Ω	.1Ω	▲120KΩ	470KΩ	0Ω		
V 15	6C4	#180KΩ #2 Meg.	Inf.	.1Ω	0Ω	#180KΩ #2 Meg.	2 Meg.	0Ω		
V 16	6V6GT	Inf.	0Ω	†2.8KΩ	†2.8KΩ	2.2 Meg.	Inf.	.1Ω	5.5KΩ 560Ω	
V 17	6AL5	27KΩ	27KΩ	.1Ω	0Ω	4.8 Meg.	Inf.	4.8 Meg.		
V 18	6SN7GT	5.2 Meg.	#30KΩ	1.5KΩ	150KΩ	#240KΩ	1.5KΩ	.1Ω	0Ω	
V 19	6BG6G	Inf.	.1Ω	15Ω	†5.7KΩ	1 Meg.	Inf.	0Ω	†5.7KΩ	TOP CAP #55Ω
V 20	6W4GT	#0Ω	#22KΩ	170KΩ	Inf.	†65Ω	Inf.	Inf.	Inf.	
V 21	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #470KΩ
V 22	5U4G	Inf.	20KΩ	Inf.	60Ω	Inf.	55Ω	Inf.	20KΩ	
V 23	16KP4	0Ω	270KΩ	PIN 10 †1KΩ	PIN 11 22KΩ	PIN 12 .1Ω				

▲ MEASURED FROM JUNCTION OF R62, R65 AND C11
† MEASURED FROM PIN 2 OF V22
# MEASURED FROM PIN 3 OF V20

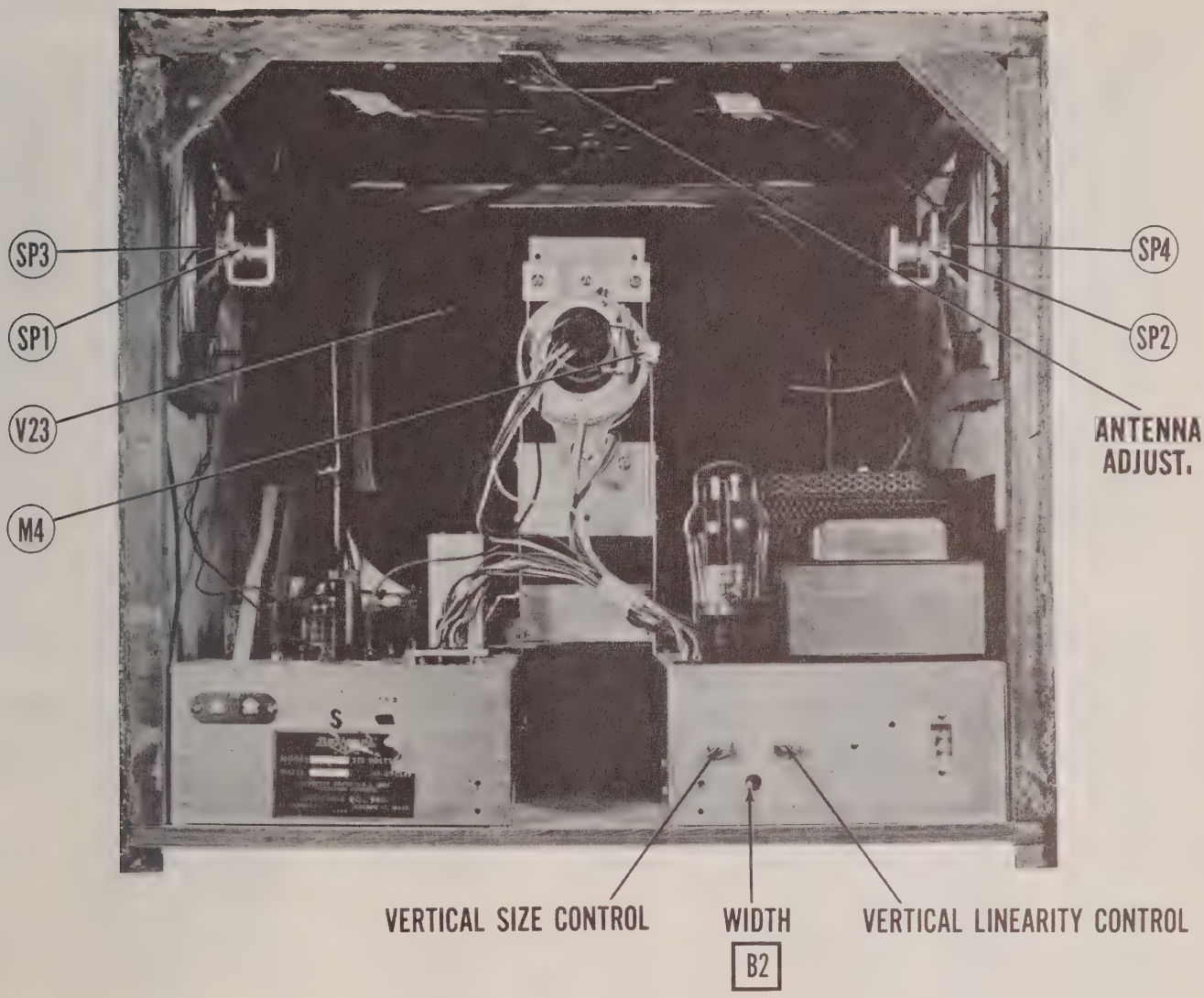
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Adjust the width slug (B2) until the picture fills the mask horizontally.

Adjust the horizontal drive trimmer (B3) for best linearity in the left side of the picture.

Adjust the horizontal linearity slug (B4) for best linearity in the right half of the picture.

Alternate adjustment of B3 and B4 may be required for best results.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AG5	6AG5	7BD	
V2	Converter	6J6	[illegible]	7BF	
V3	1st Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd Video IF Amp.	6AU6	[illegible]	7BK	
V5	3rd Video IF Amp.	6AU6	6AU6	7BK	
V6	4th Video IF Amp.	6AU6	6AU6	7BK	
V7	AGC Rectifier - Video Det.	6AL5	6AL5	6BT	
V8	Video Amp.	6AC7	6AC7	8N	
V9	DC Rest. -Sync. Sep. Sync. Clipper	12AU7	12AU7	9A	
V10A	Sound IF Amp.	6AU6	6AU6	7BK	
B	1st Sound IF Amp.	6BA6	6BA6	7BK	
V11A	2nd Sound IF Amp.	6AG5	6AG5	7BD	
B	Limiter	6AU6	6AU6	7BK	
V12	Ratio Det. -AF Amp.	6T8	6T8	9E	
V13	Audio Output	6V6	6V6	7AC	
V14	Sync. Amp.	6C4	6C4	6BG	
V15	Vert. Osc.	6C4	6C4	6BG	
V16	Vert. Output	6V6	6V6	7AC	
V17	Hor. Phase Det.	6AL5	6AL5	6BT	
V18	Hor. Mult.	6SN7GT	6SN7GT	8BD	
V19	Hor Output	6BG6G	6BG6G	5Bt	
V20	Damper	6W4GT	6W4GT	3C	
V21	HV Rectifier	1B3GT	1B3GT	4CG	
V22	LV Rectifier	5U4G	5U4G	5T	
V23A	Picture Tube	16KP4	16KP4	12D	Model TV-1601
B	Picture Tube	12LP4	12LP4	12D	Models TV-1201 and TV-1226
C	Picture Tube	16RP4	16RP4	12D	Model TV-1625

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: NATIONAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	475	K945-3	AF88K		UP4450		TVL-2830	▲ Filter
B	40	475							▲ Filter
C2	40	450	E338-17	PRS450/40		BR4045A		TVA-1712	Filter
C3	500	12	E338-6	PRS12/500		BRH125A		TVA-1132	Filter
C4	30	450	E338-16	PRS450/30		BR2045A		TVA-1709	Decoupling
C5	100	25	E338-15	PRS25/100		BR25LA		TVA-1207	Vert. Output Cath.
C6A	10	450	L189-1	PRS450/10-10		BRD1145A		TVA-2722	Vert. Output Dec.
B	10	450							Vert. Osc. Dec.
C7	40	450	E338-17	PRS450/40		BR4045A		TVA-1712	Decoupling
C8	40	450	E338-17	PRS450/40		BR4045A		TVA-1712	Decoupling
C9	10	200	E338-12	PRS250/12		BR1225A		TVA-1504	V. Amp. Screen
C10	10	50	E339-4	PRS50/10		BR105		TVA-1304	Stabilizing Cap
C11	10	50	E339-9	PRS50/10		BR105		TVA-1304	Output Cath. Bypass *
C12	5		D825D-401	SI5NPO	TCZ-4.7		NPOK-5		Fixed Trimmer *
C13	.5-3		M91-1		829-3				Variable Trimmer
C14	.5-3		M90i-1		829-3				Variable Trimmer
C15	120		D825D-438	SI120	D6-121		GP2K-120	19C29	RF Amp. Decoupling
C16	1000		D825D-427	SI1000	D6-102		GP2L-001	19C1	RF Amp. Filter
C17	100		D825D-421	SI100N750	TCN-100		N750L-100	29C16	RF Coupling
C18	.5-3		M90i-1		829-3				Variable Trimmer
C19	20		D825D-410	SI20 NPO	TCZ-20		NPOK-20		Osc. Grid Cap
C20	10		D825D-403	SI10N750	TCN-10		N750K-10	19C4	Fixed Trimmer
C21	.5-3		M90i-1		829-3				Variable Trimmer
C22	68	500	D825-438		TCZ-68		NPOM-68	38C9	Fixed Trimmer
C23A	1000		D825D-427	BPD-2X001	DD-2-102		813-2X001	29C7	RF Bypass
B	1000		D825D-427						Conv. Fil. Bypass
C24	100		D825D-438	SI100	D6-101	5W5T1	GP1K-100	19C11	IF Coupling
C25	5000		K948-1	BPD-005	DD-502	1D5D5	811-005	29C1	AGC Filter
C26	5000		K948-1	BPD-005	DD-502	1D5D5	811-005	29C1	1st V. IF Decoup
C27	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	1st V. IF Fil.
C28	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C29	100		D825D-421	SI100	D6-101	5W5T1	GP1K-100	19C11	IF Coupling
C30	.1	400	D827-11	P488-1	DF-104	PTE4P1		4TM-P1	AGC Filter
C31	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	2nd V. IF Dec.
C32	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	2nd V. IF Fil.
C33	100		D825D-421	SI100	D6-101	5W5T1	GP1K-100	19C11	IF Coupling
C34	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	3rd V. IF Dec.
C35	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	3rd V. IF Fil.
C36	100		D825D-421	SI100	D6-101	5W5T1	GP1K-100	19C11	IF Coupling
C37	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	4th V. IF Dec.
C38	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	4th V. IF Cath.
C39	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	4th V. IF Cath.
C40	100		D825D-421	SI100	D6-101	5W5T1	GP1K-100	19C11	IF Coupling
C41	120	500	SI120		D6-121	5W5T15	GP2K-120	19C29	IF Coupling
C42	.01	600	D827-7	P688-01	D6-103	PTE6SI	821-01	6TM-S1	DAGC Decoupling
C43	5		D825D-401	SI5NPO	TCZ-4.7	5W5V5	NPOK-5	MS-55	V. Diode Filter
C44	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	V. Det.-AGC Filter
C45	.1	400	D827-11	P488-1	DF-104	PTE4P1		4TM-P1	RF Bypass
C46	680	500	J665-83	SI680	D6-681	1W5T7	GP2K-680	1FM-37	V. Amp. Cath.
C47	470	500	J665-58	1468-0005	D6-471	5W5T5	GP2K-470	1FM-35	V. Amp. Cath.
C48	47		D825D-428	SI47N750	TCN-47		N750L-47	19C9	Fixed Trimmer
C49	.1	400	D827-11	P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C50	.1	400	D827-11	P488-1	DF-104	PTE4P1		4TM-P1	Pic. Tube Cath.
C51	1		L081-4		TCZ-1		NPOK-1.5		S. IF Coupling
C52	50		D825D-428	SI47N750	TCZ-51	5R5Q5	NPOM-50	29C14	Fixed Trimmer
C53	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	1st S. IF Screen
C54	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	1st S. Plate Dec.
C55	47		D825D-428	SI47	TCZ-47	5R5Q6	NPOM-47	29C14	Fixed Trimmer
C56	150		D825D-428	SI150	TCZ-150	5R5T15	GP2K-150	41C4	Fixed Trimmer
C57	39	500	J665-17	1468-00004	D6-390	5W5Q4	GP1K-39	1FM-44	S. IF Coupling
C58	.02	400	D827-43	P488-02	DF-203	PTE482		4TM-S2	2nd S. IF Dec.
C59	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	2nd S. IF Dec.
C60	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	2nd S. IF Screen
C61	5000		K946-1	BPD-005	DD-502	1D5D5	811-005	29C1	2nd S. IF Cath. *
C62	1000	500	J665-71	1468-001	D6-102	1W5D1	GP2L-001	1FM-21	Diode Load Cap
C63	.01	600	D827-7	P688-01	D6-103	PTE6SI	821-01	6TM-S1	De-emphasis

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: NATIONAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C64	.05	600	D827-3	P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C65	.01	600	D827-7	P688-01	D6-103	PTE6SI	821-01	6TM-S1	De-emphasis
C66	100		D825D-421	SI100	D6-101	5W5T1	GP2K-100	19C11	RF Bypass
C67	.1	400	D827-11	P488-1	DF-104	PTE4P1		4TM-P1	Audio Coupling
C68	.01	600	D827-7	P688-01	D6-103	PTE6SI	821-01	6TM-S1	Audio Coupling
C69	.05	600	D827-3	P688-05	DF-503	PTE6D5		6TM-S5	Bias Filter *
C70	.005	600	D827-27	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Output Plate Bypass
C71	22		K940-3	SI22	D6-220	5W5Q35	GP1K-22	19C23	Sync. Clipper Plate
C72	.1	400	D827-11	P488-1	DF-104	PTE4P1		4TM-P1	Sync. Coupling
C73	.01	600	D827-7	P688-01	D6-103	PTE6SI	821-01	6TM-S1	Sync. Coupling
C74	.002	600	D827-6	P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Integrator Net
C75	.005	600	D827-27	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Integrator Net
C76	.005	600	D827-27	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Integrator Net
C77	4700	500	J666-40	1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid
C78	.1	400	D827-11	P488-1		PTE4P1		4TM-P1	Vert. Discharge
C79	.25	400	D827-17	P488-25		GT4P25		4TM-P25	Vert. Sweep Coupling
C80	500	500	J665-57	1468-0005	D6-501	5W5T5	GP2K-500	1FM-35	Hor. Sync. Coupling
C81	500	500	J665-57	1468-0005	D6-501	5W5T5	GP2K-500	1FM-35	Hor. Sync. Coupling
C82	.05	600	D827-3	P688-05	DF-503	PTE6S5		6TM-S5	Hor. Feedback
C83	.01	600	D827-7	P688-01	D6-103	PTE6SI	821-01	6TM-S1	Voltage Divider
C84	.005	600	D827-27	P688-005	D6-502	PTE6D5	811-005	6TM-D5	AFC Filter
C85	.05	600	D827-3	P688-05	DF-503	PTE6S5		6TM-S5	AFC Filter
C86	270	500	H500-6	1468-0003	D6-271	5W5T3	GP2K-270	MS-33	Hor. MV. Feedback
C87	2500	500	J819-3	1464-004		1DR5D4		MS-24	Fixed Trimmer
C88	100	500	J665-32	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Hor. Discharge
C89	100		D825D-421	SI100	D6-101	5W5T1	GP1K-100	1FM-31	Hor. Discharge
C90	390	500	J665-33	1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	Hor. Sweep Coupling
C91	100	500	D825D-421	1468-0001	D6-101	5W5T1	GP1K-100	1FM-31	Voltage Divider
C92	.05	600	D827-3	P688-05	DF-503	PTE6S5		6TM-S5	Hor. Output Screen
C93	.0022	1000		P1088-0022		PTE16D2		MB-D22	Hor. Sweep Coupling
C94	.25	600	D827-19	684-25		GT6P25		6TM-P25	Hor. Sweep Coupling
C95	1000		D825D-427	SI100	D6-102	1W5D1	GP2L-001	19C1	Fixed Trimmer
C96	.1	600	D827-13	P688-1	DF-104	PTE6P1		6TM-P1	Hor. Feedback
C97	.05	600	D827-3	P688-05		PTE6S5		6TM-S5	Damper Filter
C98	.05	600	D827-3	P688-05		PTE6S5		6TM-S5	Damper Filter
C99	500	10000	K891-2	HV10C	TV2-501				H.V. Filter
C100	.01	600	D827-7	P688-01	D6-103	PTE6SI	821-01	6TM-S1	Line Filter
C101	.01	600	D827-7	P688-01	D6-103	PTE6SI	821-01	6TM-S1	Line Filter

* Not Used In All Models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: NATIONAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	L285-1	Concentrikit	RTV-146	SBB-632	Vertical hold control - panel
B	50KΩ	½		Bll-137 *			Horizontal hold control - rear
C	Shaft End			Bll-123 *			Attach to R1A per instructions in concentrikit.
				E-187 *			
R2	1500Ω	4	L268-1		RTV-181	SVP-998	Focus control - wire wound
R3A	100KΩ	½	K347-3	Q11-128	AG-49-8	B-40-S	Brightness control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R3A per instructions
C	Switch		Not req.	76-1	SWB	Not req.	Attach to R3A per instructions
R4	1000Ω	½	K915-11		RTV-182		Contrast control - tapped @ 750Ω
R5A	250KΩ	½	K915-8	Q11-130	AG-55-8	B-50	Volume control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R5A per instructions
R6A	2.5Meg	½	K915-10	Q11-239	AG-84-8	AN-83	Vert. size control
B	Shaft		Not req.	Not req.	FK8-1/4	AK-1	Attach to R6A per instructions
R7A	5000Ω	½	K915-9	Q11-114	AM-19-8	AN-10	Vert. linearity control
B	Shaft		Not req.	Not req.	FK8-1/4	AK-1	Attach to R7A per instructions

* Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: NATIONAL PART No.	IRC PART No.	IDENTIFICATION CODES
					ALL RESISTORS ± 10% UNLESS OTHERWISE STATED
R8	3900Ω	½	J569-32	BTS-3900	Antenna Coil Shunt - See Note 1
R9	47KΩ 20%	½	J569-45	BTS-47K	AGC Network
R10	10KΩ	½	J569-37	BTS-10K	RF Coil Shunt - See Note 2
R11	2200Ω 20%	½	J569-29	BTS-2200	RF Amp. Decoup
R12	4700Ω	½	J569-33	BTS-4700	Mixer Grid
R13	220KΩ 20%	½	J569-53		Mixer Grid
R14	10KΩ	½	J569-37		Osc. Grid
R15	4700Ω	½	J569-33	BTS-4700	Osc. Plate
R16	100Ω	½	J569-13	BTS-100	Decoup.
R17	10KΩ 5%	½	J569-85		1st Video IF Amp. Grid
R18	82Ω	½	J569-12	BTS-82	1st Video IF Amp. Cathode
R19	100Ω	½	J569-13	BTS-100	1st Video IF Amp. Decoup.
R20	330Ω	½	J569-19	BTS-330	AGC Network
R21	10KΩ 5%	½	J569-85		2nd Video IF Amp. Grid
R22	82Ω	½	J569-12	BTS-82	2nd Video IF Amp. Cathode
R23	100Ω	½	J569-13	BTS-100	2nd Video IF Amp. Decoup.
R24	2700Ω	½	J569-30	BTS-2700	3rd Video IF Amp. Grid
R25	82Ω	½	J569-12	BTS-82	3rd Video IF Amp.Cathode
R26	100Ω	½	J569-13	BTS-100	3rd Video IF Amp. Decoup.
R27	2700Ω	½	J569-30	BTS-2700	4th Video IF Amp.Grid
R28	82Ω	½	J569-12	BTS-82	4th Video IF Amp.Cathode
R29	100Ω	½	J569-13	BTS-100	4th Video IF Amp . Decoup.
R30	680KΩ	½	J569-59	BTS-680K	AGC Diode Load
R31	47KΩ	1	K853-5	BTA-47K	Voltage Divider
R32	8200Ω	½	J569-36	BTS-8200	Video Det. Diode Load
R33	1000Ω	½	J569-25	BTS-1000	Bias Network
R34	3300Ω	½	J569-31	BTS-3300	Peaking Coil Shunt
R35	1Meg	½	J569-61	BTS-1Meg	AGC Network
R36	120Ω	½	J569-14		Parasitic Supp
R37	22KΩ	5	E959-19	1 3/4-22, 500	Video Amp. Screen - Wire Wound
R38	22KΩ	1	J571-41	BTA-22K	Voltage Divider
R39	5600Ω	1	J571-34	BTA-5600	Voltage Divider
R40	27KΩ	5	E959-20		Voltage Divider - Wire Wound
R41	2200Ω	½	J569-29	BTS-2200	Picture Tube Grid
R42	270KΩ	½	J569-54	BTS-270K	DC Restorer Diode Load
R43	820KΩ	½	J569-60	BTS-820K	Voltage Divider

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: NATIONAL PART No.	IRC PART No.	IDENTIFICATION CODES
R44	47KΩ	½	J569-45	BTS-47K	DC Restorer Diode Load
R45	1000Ω	½	J569-25	BTS-1000	Accelerating Anode Load
R46	220KΩ	½	J569-53	BTS-220K	Voltage Divider
R47	22KΩ	½	J569-41	BTS-22K	Voltage Divider
R48	82Ω	½	J569-12	BTS-82	1st Sound IF Amp. Cathode
R49	1000Ω	½	J569-25	BTS-1000	1st Sound IF Amp. Screen
R50	1000Ω	½	J569-25	BTS-1000	1st Sount IF Amp. Plate Decoup
R51	470KΩ	½	J569-57	BTS-470K	2nd Sound IF Amp. Grid Leak
R52	68Ω	½	J569-11		2nd Sound IF Amp. Cathode - See Note 4
R53	1000Ω	½	J569-25	BTS-1000	Voltage Divider
R54	47KΩ	½	J569-45	BTS-47K	2nd Sound IF Amp. Screen
R55	1000Ω	½	J569-25	BTS-1000	2nd Sound IF Amp. Decoup
R56	220Ω	½	J569-17	BTS-220	balancing
R57	15KΩ	½	J569-39	BTS-15K	De-emphasis
R58	15KΩ	½	J569-39	BTS-15K	Ratio Det. Diode Load
R59	470KΩ	½	J569-57	BTS-470K	AF Amp. Grid
R60	470KΩ	½	J569-57	BTS-470K	AF Amp. Grid - See Note 4
R61	470KΩ	½	J569-57	BTS-470K	Voltage Divider
R62	4700Ω	½	J569-33	BTS-4700	Bias Network
R63	330KΩ	½	J569-88	BTS-330K	AF Amp. Plate
R64	220KΩ	½	J569-53	BTS-220K	Output Grid
R65	270Ω	1		BTA-270	Output Cathode - See Note 4
R66	390Ω	1	J571-20	BTA-390	Output Decoup
R67	330KΩ	½	J569-88	BTS-330K	Voltage Divider - See Note 4
R68	180KΩ	½	J569-89	BTS-180K	Voltage Divider - See Note 4
R69	470KΩ	½	J569-57	BTS-470K	Sync. Amp. Grid
R70	120KΩ	½		BTS-120K	Sync. Amp. Plate - See Note 3
R71	1Meg	½	J569-61	BTS-1Meg	Sync Sep. Grid
R72	4700Ω	½	J569-33	BTS-4700	Sync. Sep. Cathode
R73	3900Ω	½	J569-32	BTS-3900	Sync. Sep. Plate
R74	22KΩ	½	J569-41	BTS-22K	Integrator Network
R75	8200Ω	½	J569-36	BTS-8200	Integrator Network
R76	8200Ω	½	J569-36	BTS-8200	Integrator Network
R77	1Meg	½	J569-61	BTS-1Meg	Vert. Osc. Grid
R78	120KΩ	½		BTS-120K	Voltage Divider - See Note 3
R79	6.8Meg	½		BTS-6.8Meg	Voltage Divider
R80	4700Ω	½	J569-33	BTS-4700	Vert. Peaking
R81	120KΩ	½		BTS-120K	Vert. Osc. Plate - See Note 3
R82	2.2Meg	½	J569-65	BTS-2.2Meg	Vert. Output Grid
R83	560Ω	½	J569-22	BTS-560	Vert. Output Cathode
R84	2200Ω	½	J569-29	BTS-2200	Vert. Output Plate
R85	100KΩ	½	J569-49	BTS-100K	Horiz. Phase Det. Diode Load
R86	100KΩ	½	J569-49	BTS-100K	Horiz. Phase Det. Diode Load
R87	4.7Meg	½	J569-69	BTS-4.7Meg	Horiz. Phase Det. Diode Load
R88	470KΩ	½	J569-57	BTS-470K	Horiz. AFC Filter
R89	27K	½	J569-42	BTS-27K	Feedback Network
R90	10K	1		BTA-10K	Feedback Network - See Note 1
R91	2200Ω	1	J571-29	BTA-2200	Centering Network
R92	1500Ω	½	J569-27	BTS-1500	Horiz. Osc. Cathode
R93	8200Ω	½	J569-36	BTS-8200	Horiz. Osc. Plate
R94	100KΩ	½	J569-49	BTS-100K	Horiz. Osc. Grid
R95	220KΩ	1	J571-53	BTA-220K	Horiz. Osc. Plate
R96	22KΩ	1	J571-41	BTA-22K	Decoup
R97	68Ω	1	J569-11		Parasitic Supp
R98	1Meg	½	J569-61	BTS-1Meg	Horiz. Output Grid
R99	15Ω	1	J571-3	BW-1-15	Horiz. Output Cathode
R100	5600Ω	1	J569-27	BTA-5600	Horiz. Output Screen -See Note 5
R101	470KΩ	½	J569-57	BTS-470K	Current Limiting
R102	470KΩ	1	J571-51	BTA-470K	HV Filter
R103	470Ω	2	J572-27	BTB-470	Focus Coil Shunt -See Note 4
R104	15Ω	½	J569-3	BW-½-15	Bias Network - Wire Wound
R105	56KΩ	1	J569-46	BTA-56K	Filter
R106	68Ω	1		BW-1-68	Centering Network - See Note 4
R107	3900Ω	½	J569-32	BTS-3900	Sync. Sep. Plate - See Note 4
R108	16KΩ	1		BTA-15K	2nd IF Amp. Screen - See Note 4

Note 1. Some Models Use 4700Ω Resistor In This Application.
Note 2. Some Models Use 15KΩ Resistor In This Application.
Note 3. Some Models Use 100KΩ Resistor In This Application.
Note 4. Not Used In All Models.
Note 5. Some Models Use 1500Ω Resistor In This Application.

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	REPLACEMENT DATA: NATIONAL PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1	PM	4.2Ω	K892-1 ④ ⑤	46J6 ④	46A07 ④	④ Two Speakers Are Used In Series.
SP2 A	PM	4.2Ω	K892-1 ④ ⑤	46J6 ④	46J07 ④	⑤ Used In Models TV-1601, TV-1201
B	PM		P297-1 ⑥			⑥ Used In Models TV-1625, TV-1226
	CONE DIA.	V. C. DIA.				
SP3	4"x 6"	9/16"				
SP4 A	4" x 6"	9/16"				
B	10"					

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: NATIONAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 1.8A	760VCT @ 200ADC	5VAC @ 2A	6.3VAC @ 1.2A	L275-2		P-3067	TP-370
			SEC. 4	SEC. 5				
			6.3VAC ⑥ 1.3A	6.3VAC ⑤ 6.4A				

NATIONAL MODELS
TV-1201, TV-1226, TV-1601, TV-1625

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA NATIONAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	170Ω	1480Ω	L254-1	A-8121 ①	A-4000 ①	TBO-3	Vert. Osc. Trans.
T3	29Ω	400Ω	P272-1		HVO-6		Hor. Output
		SEC. 2					
		17Ω Tap ⓐ 8Ω, 12.5Ω					
		SEC. 3					
		0Ω					
T4	575Ω	7Ω	L253-1	A-8115	A-3035	TSO-4	Vert. Output Trans.
T5A	14Ω		P-283-1 ②	DY-7	MD-70F		Hor. Deflection Coil
B	60Ω						Vert. Deflection Coil
T5A	14Ω		L251-1 ③				Hor. Deflection Coil
B	63Ω						Vert. Deflection Coil
T6	1600Ω		P-281-1 ②				Focus Coil
	255Ω		L252-1 ③				

① Drill One New Mtg. Hole.
② Used In Models TV-1601, TV-1625
③ Used In Models TV-1201, TV-1226

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA NATIONAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	6000Ω	8.5Ω	380Ω	.8Ω	F450-1	A-3825 ⑧		RO-9 ⑧	⑧ Drill New Mtg. Hole.

FILTER CHOKE

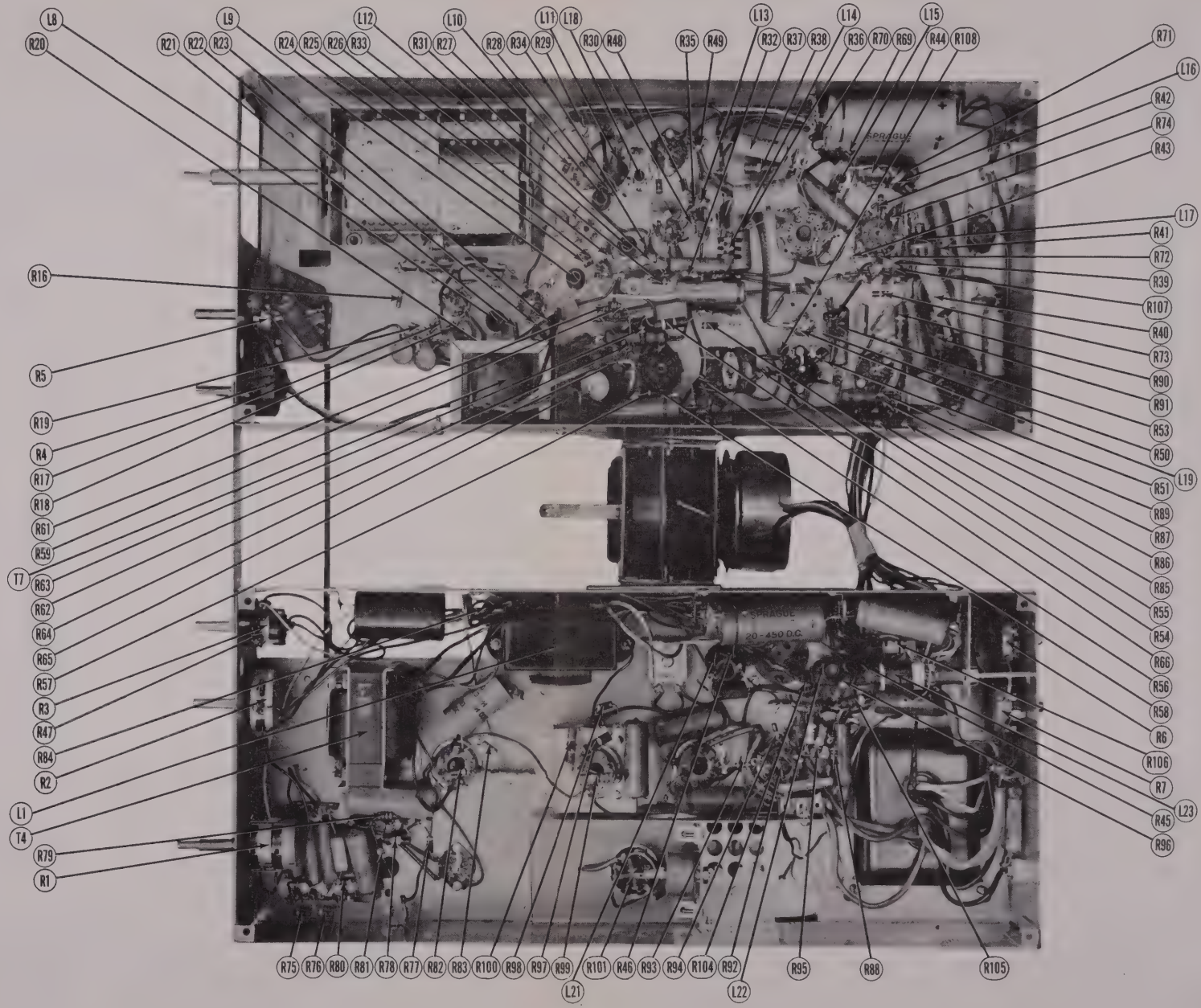
ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∽)	REPLACEMENT DATA NATIONAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.200A	50Ω	3HY	K927-2	C-2325 ①	C-2996 ①	TR-4200 ①	① Drill one new mtg. hole

COILS (RF-IF)

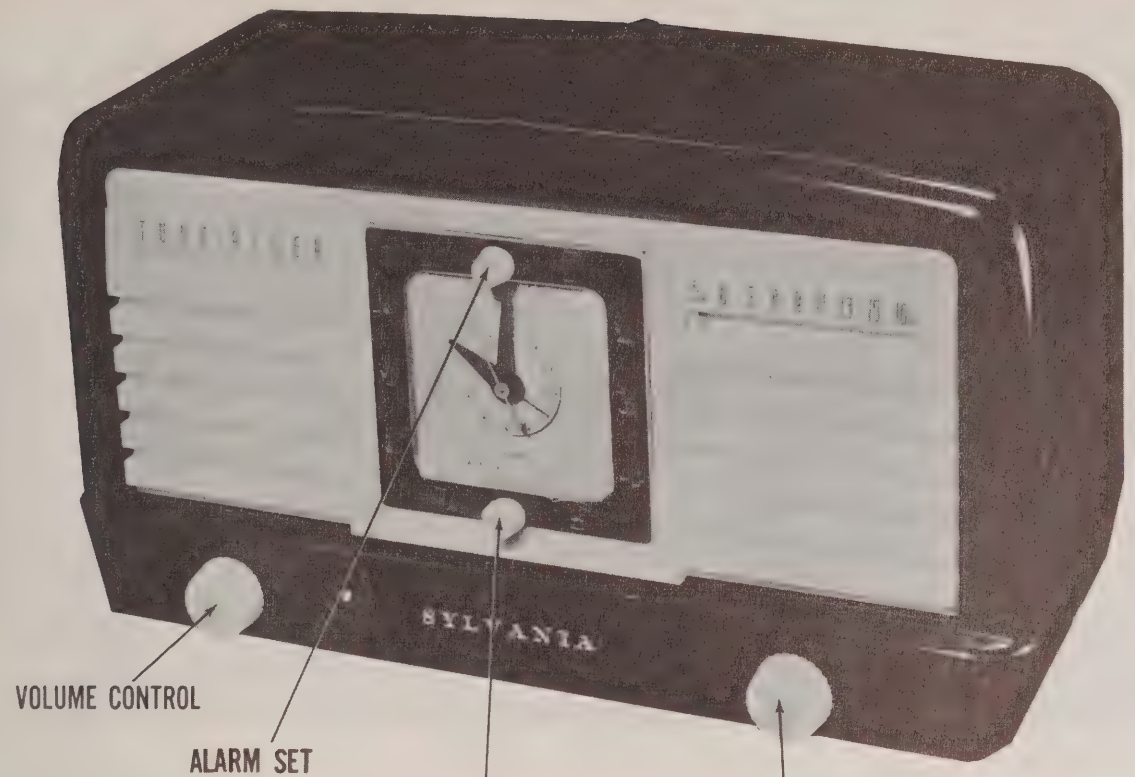
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA NATIONAL PART No.	MEISSNER PART No.	IRC PART No.	NOTES
L2	Ant. Coil	0Ω	0Ω				
L3	Fil. Choke	0Ω		P278-2			
L4	RF Mixer Grid And Osc. Coil	0Ω					
L5	Fil. Choke			P278-2			
L6	Sound Trap And RF Choke	1.8Ω		SA:7006			
L7	1st Video IF	1.2Ω		SA:6395-2			
L8	2nd Video IF	.2Ω		SA:6395-1			
L9	3rd Video IF	.2Ω		SA:6395-1			
L10	4th Video IF	.2Ω		SA:6395-3			
L11	RF Choke	3.2Ω		P278-1		CL-1-4.7	4.7 Microhenries
L12	5th Video IF	.2Ω		SA:6395-3			
L13	Peaking	3.5Ω		SA:5489			Wound On 47KΩ Resistor
L14	Peaking	11Ω		SA:5491			Wound On 1Meg Resistor
L15	Sound Trap	1.7Ω		SA:5515			
L16	Peaking	4Ω		SA:5492			Wound On 18KΩ Resistor
L17	Peaking	5.2		SA:5493			Wound On 1Meg Resistor
L18	1st Sound IF	1.7Ω		SA:5515			
L19	2nd Sound IF	1.7Ω	1.2Ω	SA:6392			
L20	Ratio Det. Trans.	8Ω	.9Ω	SA:4997			
L21	Horiz. Freq.	118Ω		SA:5487			
L22	Horiz. Lin.	25Ω		P273-1			
L23	Width Coil	26Ω	3.8Ω	P274-1			

MISCELLANEOUS

ITEM No.	PART NAME	NATIONAL PART No.	NOTES
M1	RF Tuner		
M2	Fuse	F135-11	4A 250V(Not Used In All Models)
M3	Fuse	M559-1	.25A 250V Type 3AG
M4A	Ion Trap	P437-1	Models TV-1601, TV-1625
B	Ion Trap	L342-1	Models TV-1201, TV-1226
B3	Trimmer	K923-2	Horiz. Drive(70-350MMF)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



SYLVANIA
MODELS 540B, 540H, 540M

SYLVANIA
MODELS 540B, 540H, 540M

SYLVANIA MODEL 540MA

TRADE NAME	Sylvania, Models 540BA, 540HA, 540MA
MANUFACTURER	Sylvania Elect. Prod. Inc., Colonial Radio & Tel. Div., 254 Rand St., Buffalo, New York
TYPE SET	AC Operated Superheterodyne Receiver with Electric Clock
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AT6 DET-AVC-AF, 50C5 Power Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC
RATING	.24 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer, turn tuning gang fully closed and set the left hand edge of the pointer 3/8 inch from the left hand of the dial backplate.

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B- . Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning. gang. Low side to B-.	455KC (400 ∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to . 001MFD to reduce hum modulation.
2.		Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	Tune for max. output	"	A6	"

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PARTS LIST AND DESCRIPTIONS

SYLVANIA MODEL 540MA

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SYLVANIA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	623-0013G	12BE6	7CH	
V2	IF Amp.	623-0012G	12BA6	7BK	
V3	DET.-AVC-AF	623-0016G	12AT6	7BT	
V4	*Power Output	623-0015G	50C5	7CV	
V5	Rectifier	634-0002G	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	161-3010	PRS150/40-40-40		EDL44215		TVA-3451	Filter-Green
B	40	150							Filter-Red
C	20	150							Filter-Blue
C2	.05	200	162-0415	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C3	500	500	163-0500	1468-0005	D6-501	5W5T5	GP2K-500	1FM-35	Diode RF Filter
C4	.005	600	162-0625	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C5	500	500	163-0500	1468-0005	D6-501	5W5T5	GP2K-500	1FM-35	AF Amp. Plate
C6	.01	400	162-0411	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C7	.01	400	162-0411	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Output Plate Byp.
C8	.2	400	162-0402	P488-22		GT4P2		72P52	Line Isolation
C9	.047	400	160-0415	P488-047	DF-503	PTE4S5		4TM-S47	Line Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	153-0012	Q11-133	AG-60-Z	BSK-60	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A per instructions

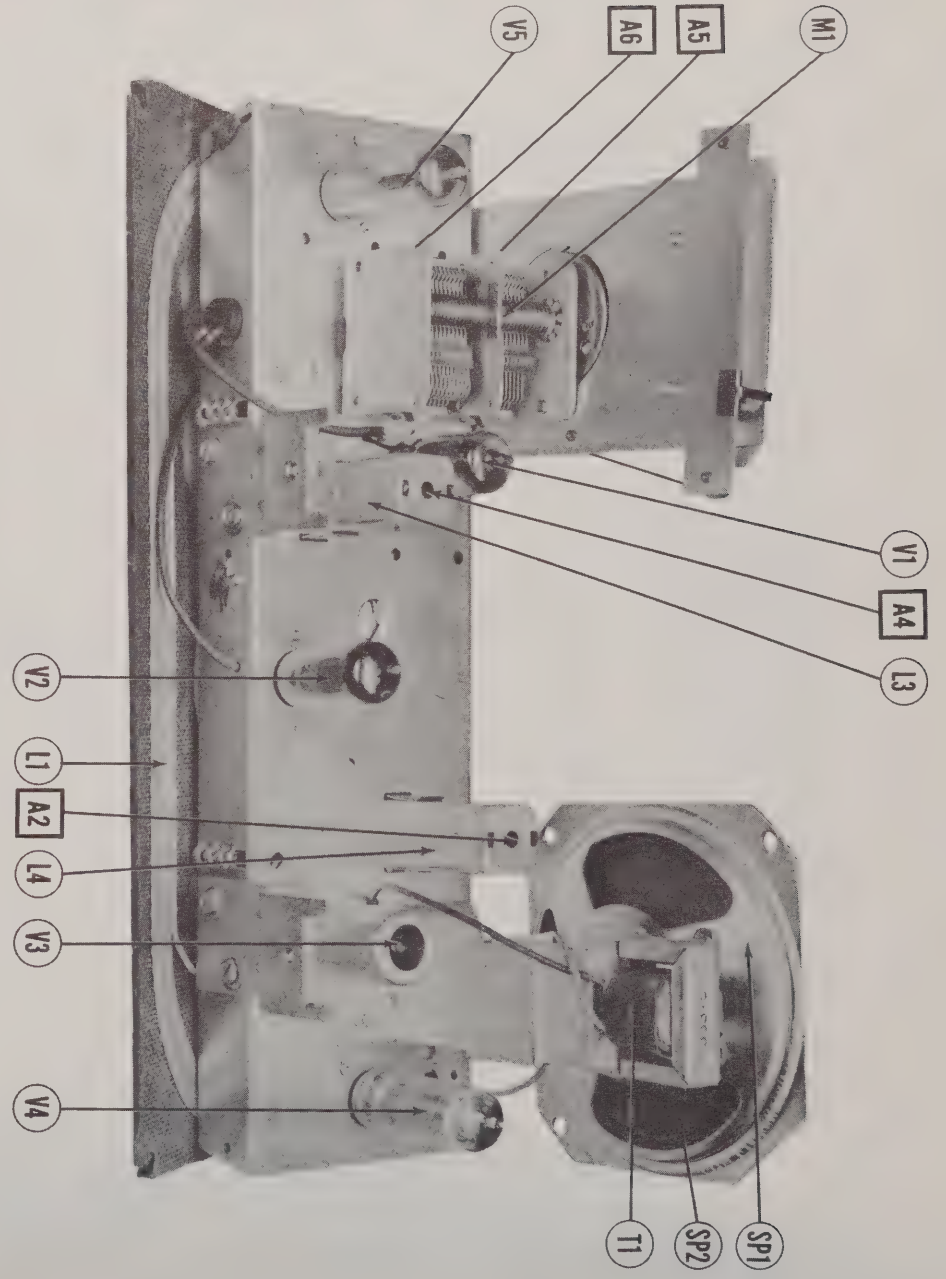
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SYLVANIA PART No.	IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½	181-0223		Osc. Grid
R3	150Ω	½	181-0151	BTS-150	IF Amp. Cathode
R4	3.3 Meg.	½	181-0335	BTS-3.3 Meg.	AVC Network
R5	10 Meg.	½	181-0106	BTS-10 Meg.	AF Amp. Grid
R6	470KΩ	½	181-0474	BTS-470K	AF Amp. Plate
R7	470KΩ	½	181-0474	BTS-470K	Output Grid
R8	150Ω	½	181-0151	BTS-150	Output Cathode
R9	1500Ω	1	182-0152	BTA-15D0	Filter
R10	100Ω	1	183-0101	BW-1-100	Filter-Wire Wound
R11	22Ω	½	181-0220		Rectifier Ballast

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SYLVANIA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO* PART No.	INSTALLATION NOTES
T1	2.6KΩ	4Ω	160Ω	.4Ω	Part of SPK.	A-3332 ①	A-3025 ①	RO-2 ①	① Bend mounting tabs down and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

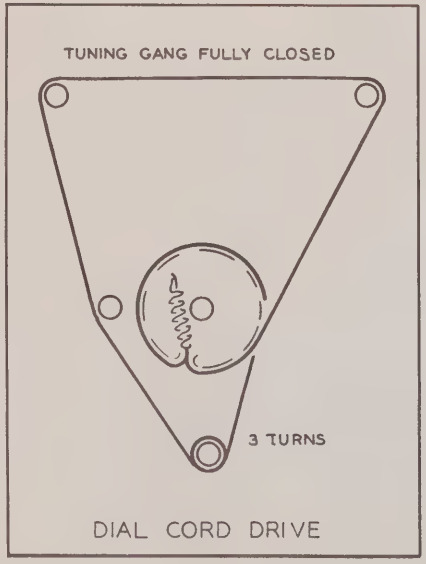
ITEM No.	RATINGS		REPLACEMENT DATA: SYLVANIA PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
SP1	FIELD PM	V. C. IMP. 4Ω	539-0401	ST-113 MOD. P4-X	4A07	
SP2	CONE DIA. 4"	V. C. DIA. 9/16"				

R F COILS

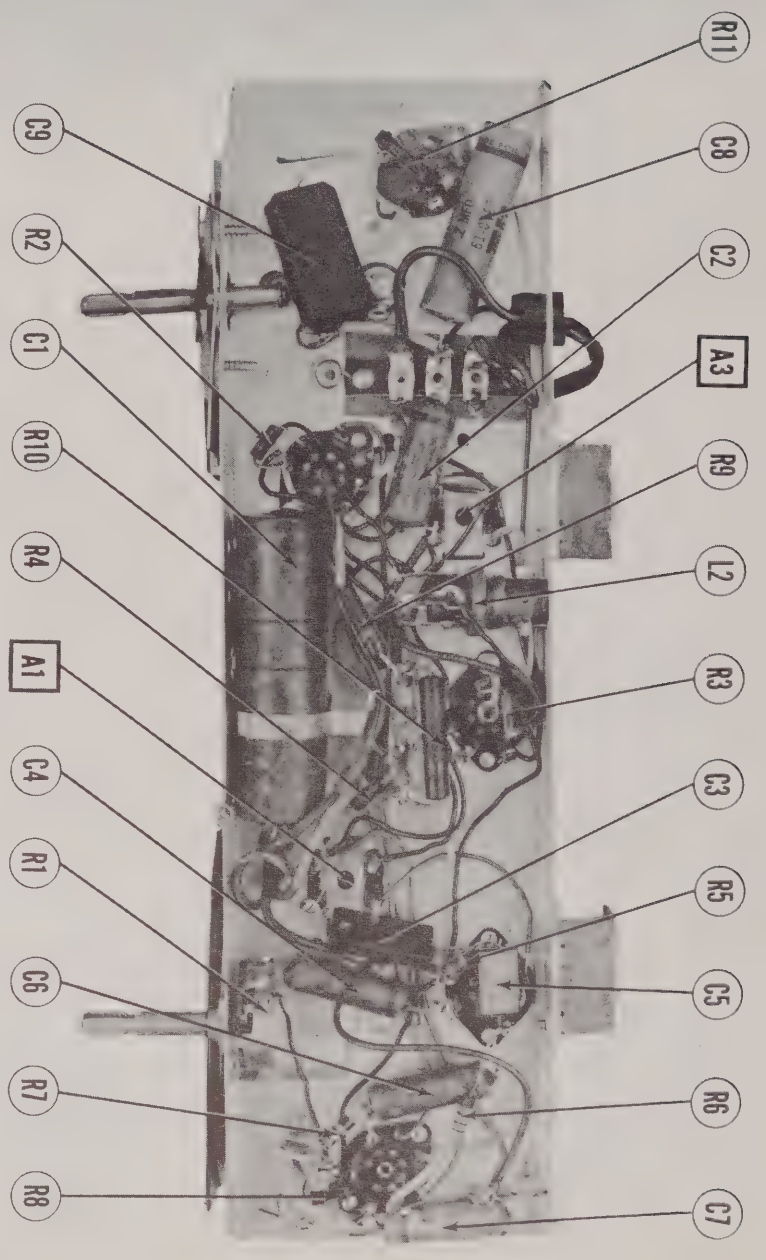
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SYLVANIA PART No.	REPLACEMENT DATA: MEISSNER PART No.	
L1	Loop Ant.	2.2Ω		582-0007		
L2	Osc. Coil	.6Ω	7Ω	113-0018		
L3	1st IF	20Ω	20Ω	121-0101	16-6758	
L4	2nd IF	20Ω	20Ω	121-0101	16-6758	

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M1	2 Gang Var. Cap.	172-0004	(20-461MMF, 30-210MMF)
	Cabinet	813-0004	Model 540MA
	Cabinet	813-0005	Model 540BA
	Cabinet	813-0006	Model 540HA
	Dial Pointer	792-0003	
	Knob	740-0008	Volume and tuning



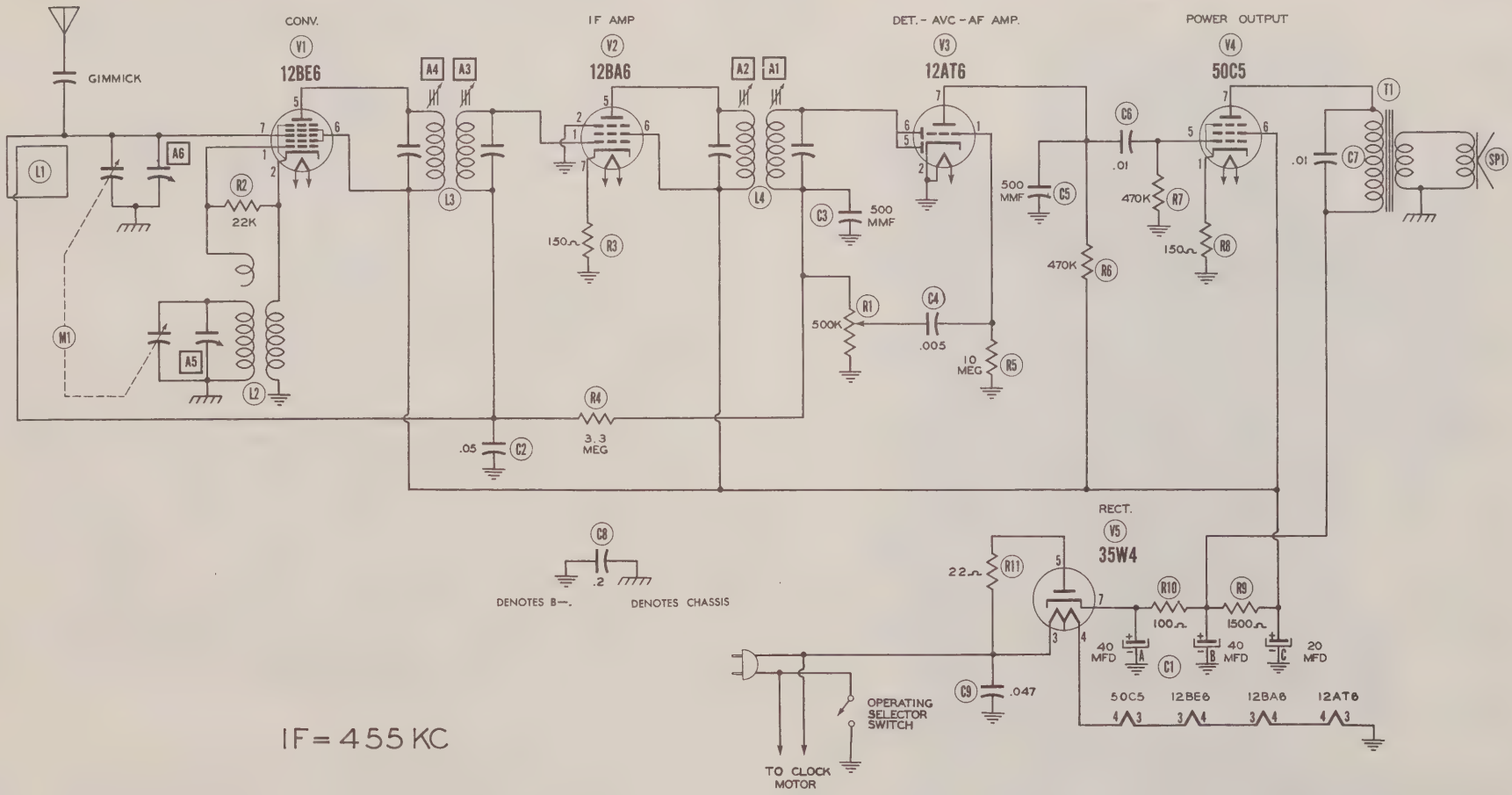
CHASSIS—BOTTOM VIEW



SET 119 FOLDER 11

SYLVANIA MODEL 540MA

SYLVANIA MODEL 540 MA



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	§-5.2VDC	0V	36VAC	25VAC	85VDC	85VDC	-.1VDC
V 2	12BA6	-.1VDC	0V	25VAC	13VAC	85VDC	85VDC	1.3VDC
V 3	12AT6	-.7VDC	0V	0V	13VAC	-.6VDC	-.6VDC	40VDC
V 4	50C5	4.6VDC	0V	36VAC	85VAC	0V	85VDC	110VDC
V 5	35W4	117VAC	0V	117VAC	85VAC	112VAC	95VAC	120VDC

§ TAKEN WITH VACUUM TUBE VOLTEMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.8Ω	45Ω	30Ω	†1.6KΩ	†1.6KΩ	3.8 Meg.
V 2	12BA6	3.8 Meg.	0Ω	30Ω	16Ω	†1.6KΩ	†1.6KΩ	150Ω
V 3	12AT6	10 Meg.	0Ω	0Ω	16Ω	500KΩ	500KΩ	†470KΩ
V 4	50C5	150Ω	470KΩ	45Ω	100Ω	470KΩ	†1.6KΩ	†260Ω
V 5	35W4	140Ω	Inf.	140Ω	100Ω	160Ω	120Ω	80KΩ

† MEASURED FROM PIN 7 OF V5

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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

*TRADE MARK

TRUETONE MODELS
2D1093A, 2D1094A

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MODEL 2D1094A

TRUETONE MODELS
2D1093A, 2D1094A

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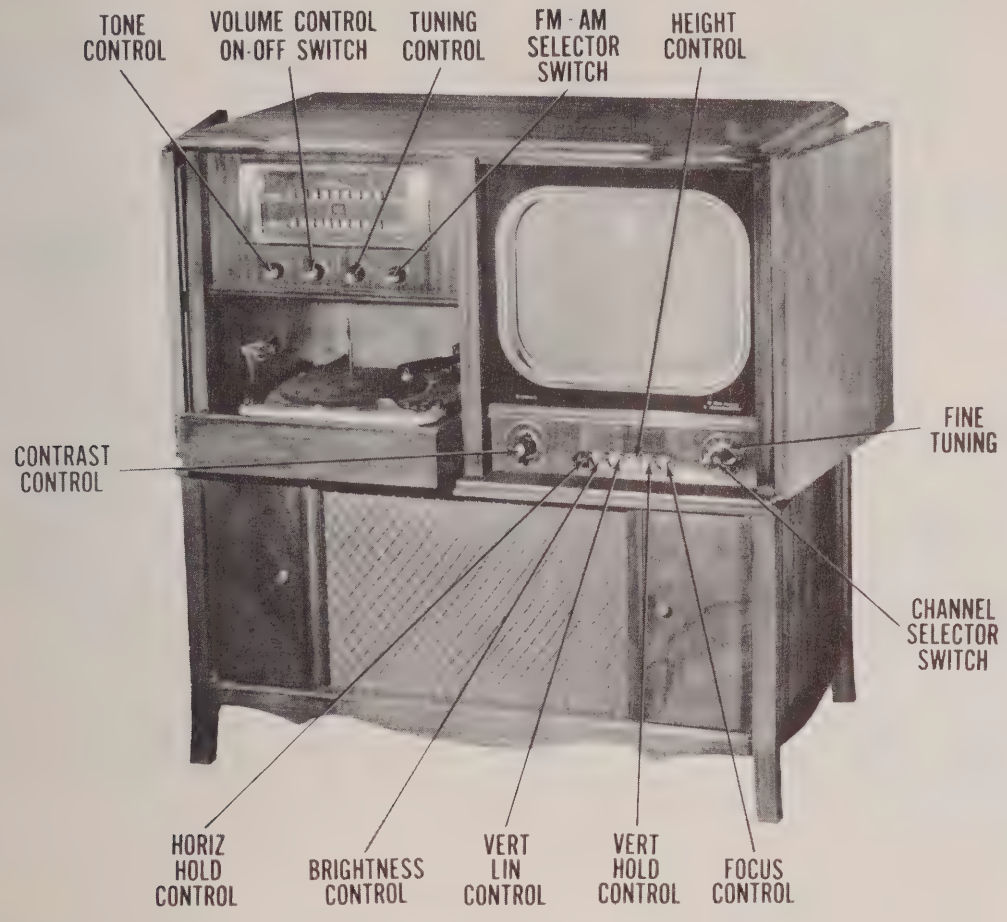
Date 1/51 Set No. 119—Folder No. 12

TRUETONE
MODELS 2D1093A, 2D1094A



TRUETONE MODEL 2D 1094A

TRADE NAME	Truetone Models 2D1093A, 2D1094A		
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.		
TYPE SET	TV-AM-FM-Phono Combination Receiver (Model 2D1094A) TV-AM-Phono Combination Receiver (Model 2D1093A)		
TUBES	Twenty Nine (Model 2D1094A) Twenty Seven (Model 2D1093A)		
POWER SUPPLY	110-120 Volts AC	RATING	Model 2D1094A (TV) 2.13 Amp. @ 117Volts AC (Radio) .53 Amp. @ 117 Volts AC
TUNING RANGE	TV Channels 2 Thru 13 FM 88-108MC AM 540 - 1600KC		Model 2D1093A (TV) 1.98 Amp. @ 117Volts AC (Radio) .28 Amp. @ 117Volts AC

INDEX

Alignment Instructions 6, 7, 8
Dial Cord Stringing 16
Disassembly Instructions 17
Horizontal Sweep Circuit Adjustment 17
Parts List And Description ..... 21 thru 26
Photographs
- Cabinet - Rear View 17
- Capacitor And Alignment Identification (TV) 4, 9
- Chassis - Bottom View (Radio -Model 2D1093A) 12
- Chassis - Bottom View (Radio-Model 2D1094A) 14
- Chassis - Top View (Radio-Model 2D1093A) 12
- Chassis - Top View (Radio-Model 2D1094A) 16

Photographs (Continued)
- Chassis - Top View (TV) 5
- RF Tuner 19
- Resistor And Inductor Identification (TV) 11, 18

Schematic (Alternate Tuner) 20
Schematic (Radio-Model 2D1093A) 13
Schematic (Radio-Model 2D1094A 15
Schematic (TV) 2
Tube Placement Chart (TV) 3
Volt. & Resist. Measurements (Radio-Model 2D1093A) 13
Volt. & Resist. Measurements (Radio-Model 2D1094A) 15
Volt. & Resist. Measurements (TV) 10

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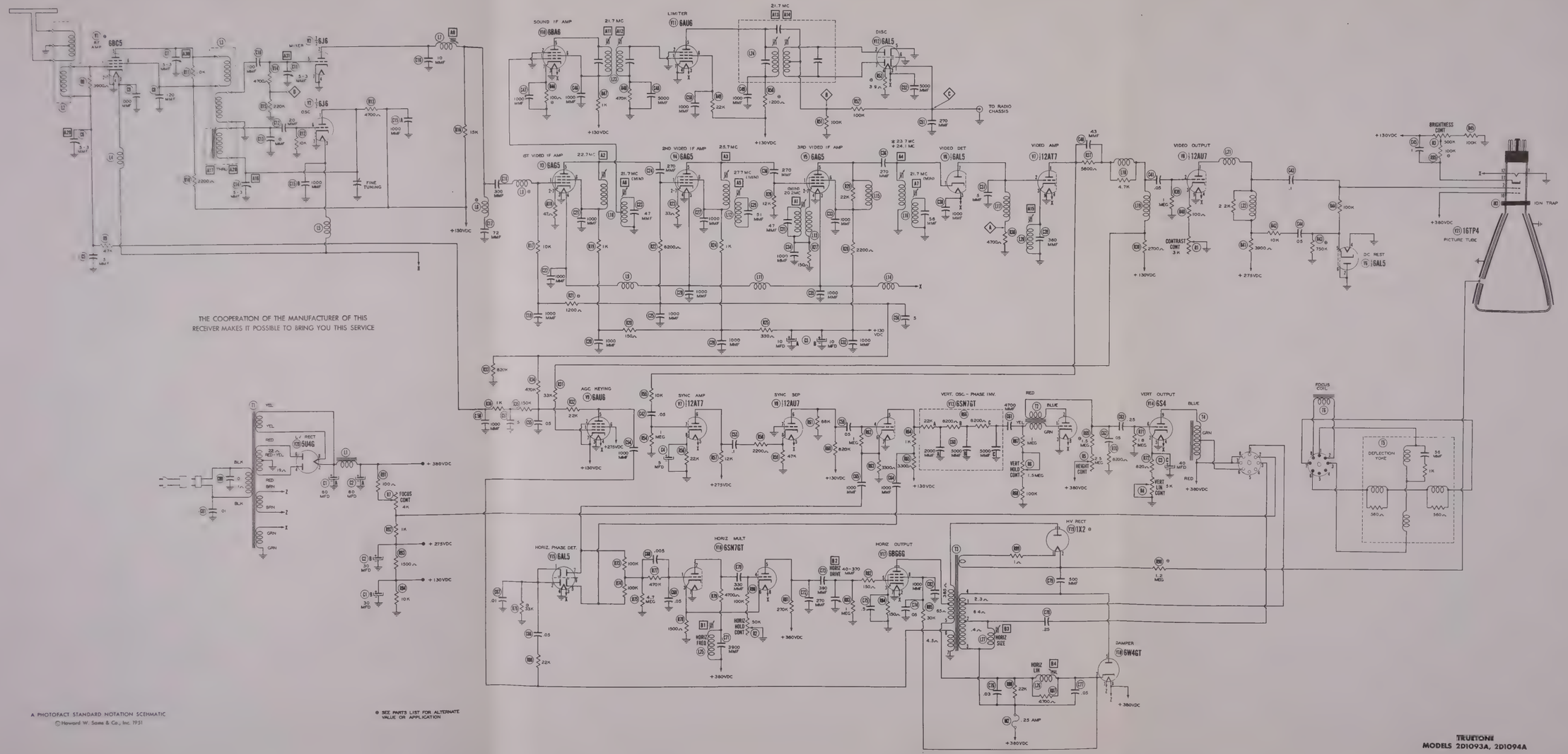
MODELS 2D1093A, 2D1094A



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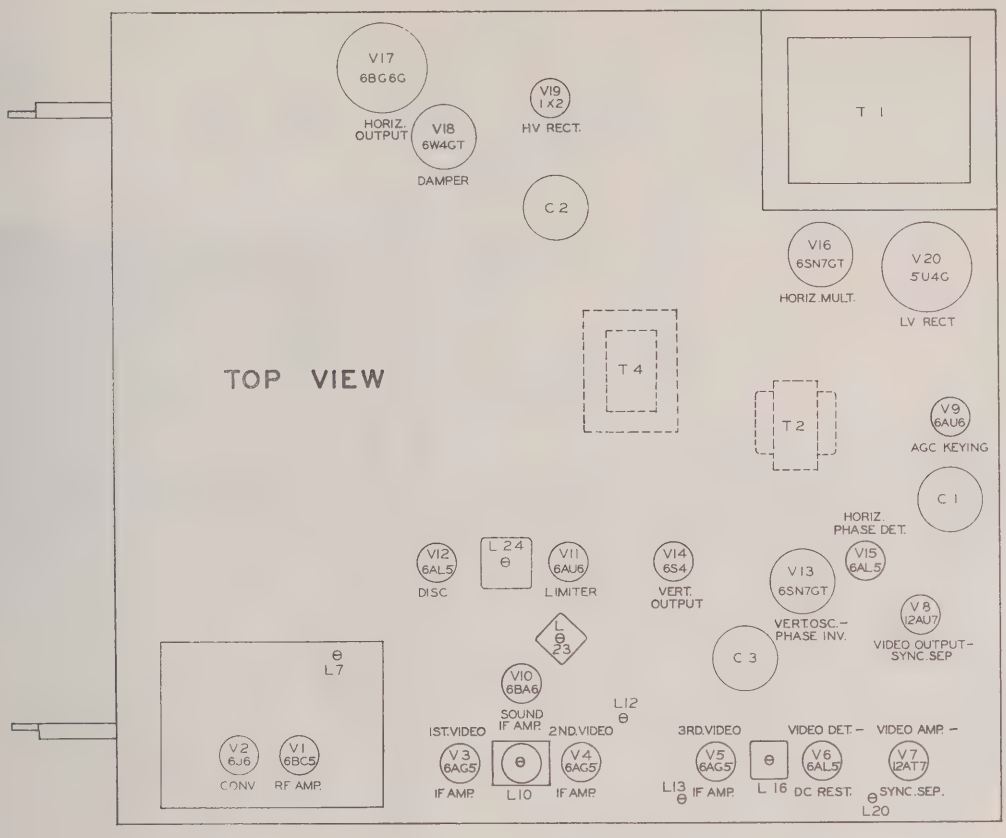
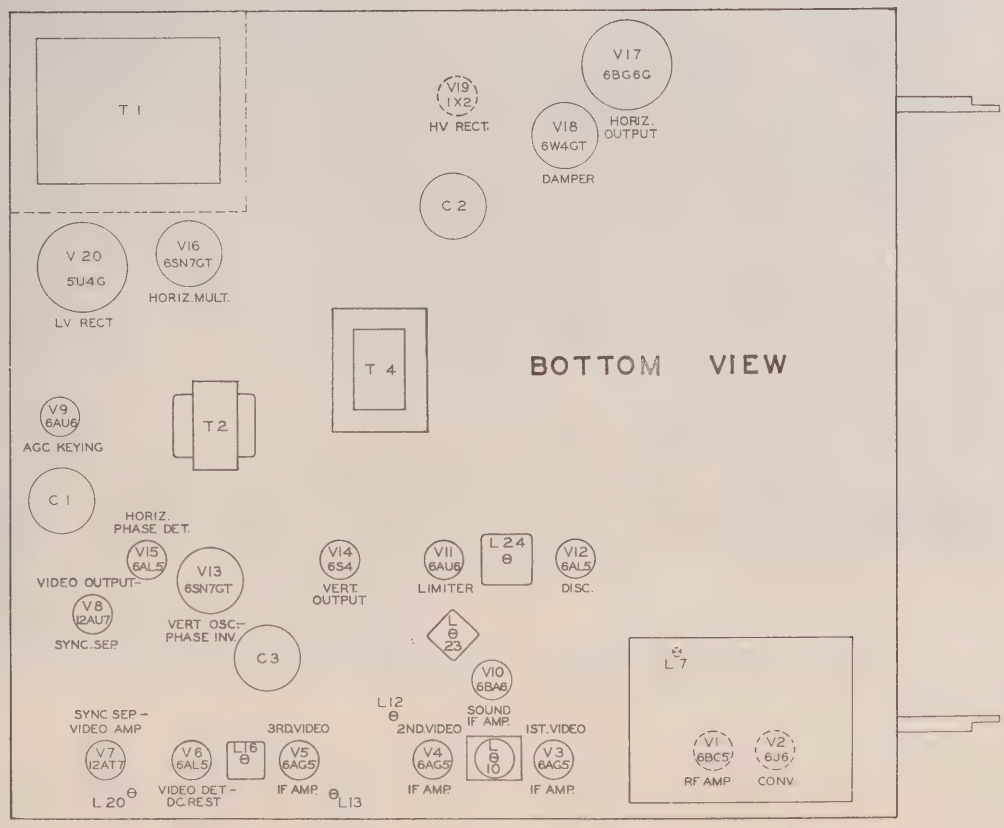
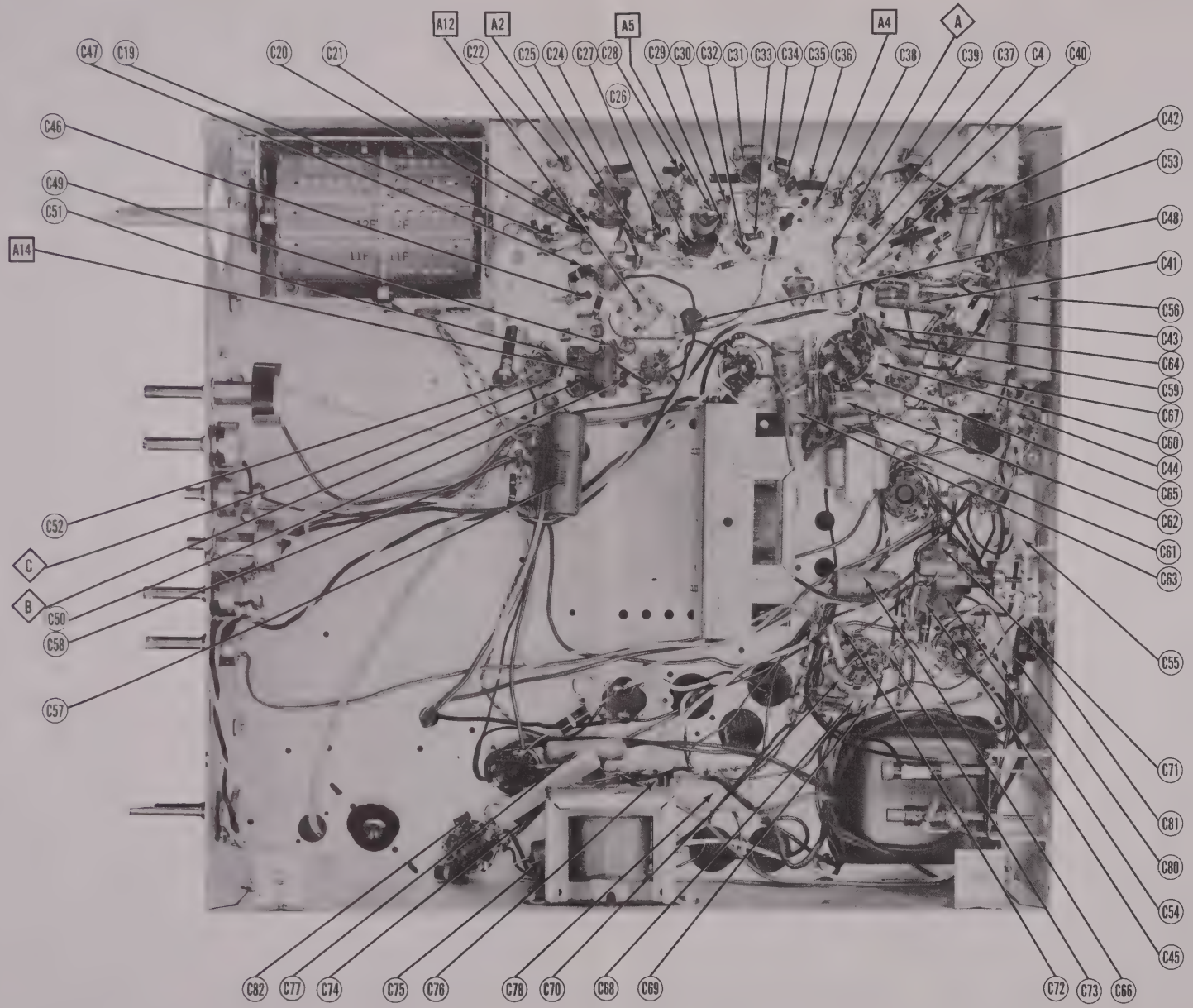
MODELS 2D1093A, 2D1094A

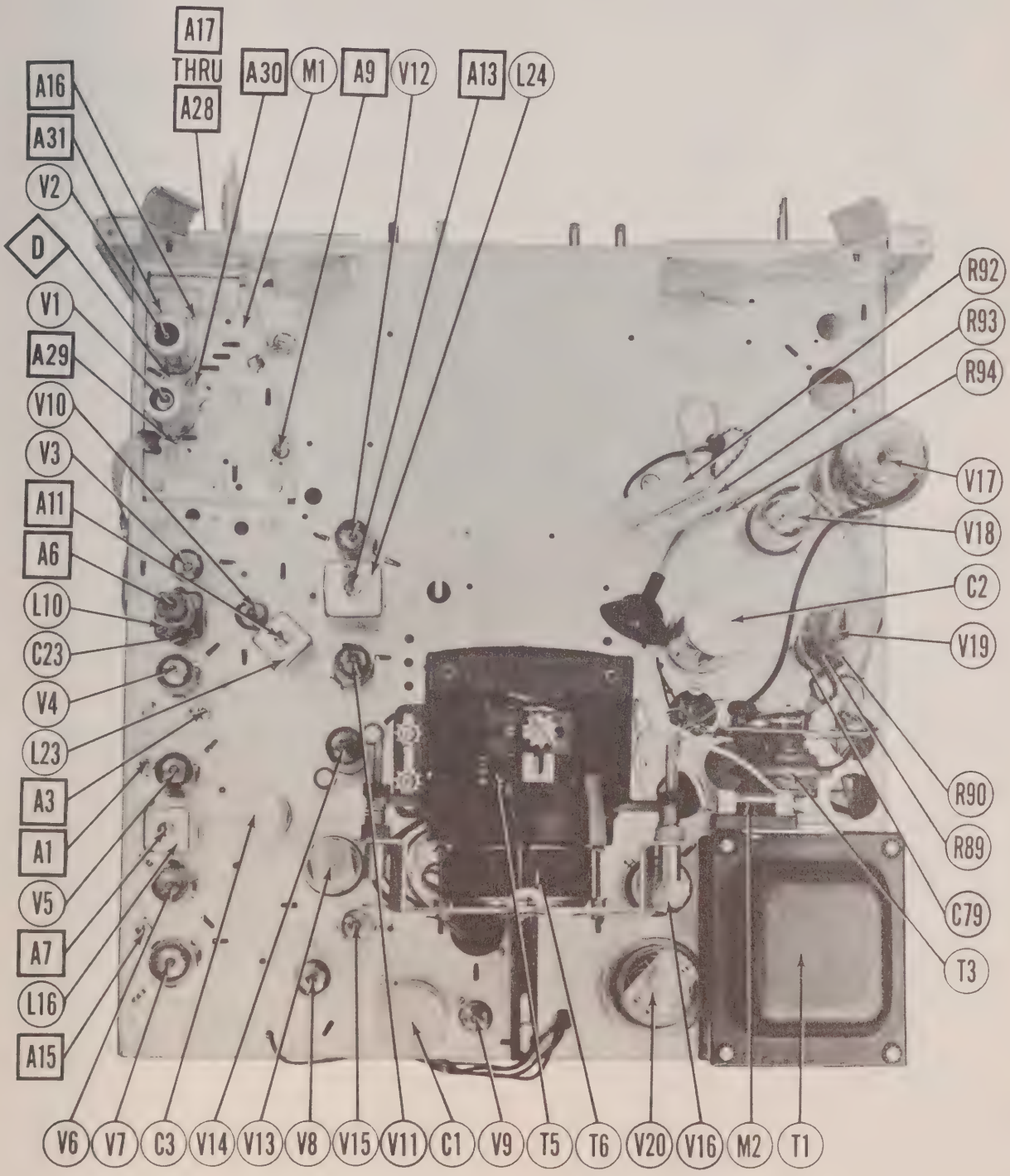




TUBE PLACEMENT CHART



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



CHASSIS-TOP VIEW

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn the selector switch on the radio chassis to TV (maximum counter-clockwise).
The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V16) from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and eliminate the possibility of erroneous indications.

These receivers employ two tuners. The Video IF Alignment varies slightly, depending on the tuner used. If the set has a turret type tuner use the frequency indicated by an asterisk (*), if the set has a switch type tuner use the frequency indicated by a dagger (†).

A8 is not in the receivers employing a turret type tuner, for those receivers omit step 7.

Connect a synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	20.2MC (Unmod.)	Any	DC Probe to Point (A). Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	Direct	"	22.7MC	"	"	A2	Adjust for maximum deflection.
3.	Direct	"	25.7MC	"	"	A3	"
4.	Direct	"	*23.7MC †24.1MC	"	"	A4	"
5.	Direct	"	27.7MC	"	"	A5	Adjust for MINIMUM deflection.
6.	Direct	"	21.7MC	"	"	A6, A7	"
7.	Direct	"	†17MC	"	"	A8	"

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	24MC (10MC SWP)	21.7MC 26.2MC	Any	Vert. Amp. thru detector probe (fig. 1) to pin 5 (plate) of 6AG5 (V3). Low side to chassis.	A9, A10	If the set has a turret type tuner adjust A9 for response curve shown in figure 2. If the set has a switch type tuner adjust A9 and A10 for response curve shown in figure 2A. With switch type tuner slight adjustment of A8 may be required.
9.	Direct	"	"	21.7MC 22.4MC 22.6MC 25.25MC 26.2MC	"	Vert. Amp. to Point (A). Low side to chassis.		Check for response curve similar to figure 3. If necessary retouch A2, A3, A4, A9 and A10 for proper response.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.
Connect a 1000 ohm decoupling resistor in series with the oscilloscope vertical input, and a .005MFD capacitor across the vertical input terminals.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	.01MFD	High side to pin 1 (Grid) of 6BA6 (V10). Low side to chassis.	21.7MC (450KC SWP)	21.7MC	Any	Vert. Amp. to Point (B). Low side to chassis.	A11, A12, A13	Adjust for maximum amplitude and symmetry as per figure 4.
11.	.01MFD	"	"	"	"	Vert. Amp. to Point (C). Low side to chassis.	A14	Adjust A14 so 21.7MC occurs at center of crossover lines as per figure 5. SLIGHTLY retouch A13 for maximum amplitude and straightness of crossover lines.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.01MFD	High side to pin 1 (Grid) of 6BA6 (V10). Low side to chassis.	21.7MC (Unmod.)	Any	DC Probe to Point (B). Common to chassis.	A11, A12, A13	Adjust for maximum deflection.
11.	.01MFD	"	"	"	DC Probe to Point (C). Low side to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12.	10KΩ carbon res.	High side thru 10KΩ to pin 2 (Grid) of 12AT7 (V7). Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe to pin 2 (Grid) of picture tube. Common to chassis.	A15	Adjust for MINIMUM deflection.

OSCILLATOR ALIGNMENT (TURRET TYPE TUNER)

Remove the dummy converter tube and replace the original 6J6 in its socket.

Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency for a majority of the channels, it may be possible to correct them in one step using A16. It should be noted that this is an all channel oscillator circuit adjustment, and should not be adjusted for any individual channel. If adjustment of A16 will not bring all channels within the range of the fine tuning control, it will be necessary to adjust the individual channel oscillator adjustment screw for each channel that is off frequency. The individual channel oscillator adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.

The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
13.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	215.75MC (Unmod.)	13	DC Probe to Point (C). Common to chassis.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			209.75MC	12		A18	
			203.75MC	11		A19	
			197.75MC	10		A20	
			191.75MC	9		A21	
			185.75MC	8		A22	
			179.75MC	7		A23	
			87.75MC	6		A24	
			81.75MC	5		A25	
			71.75MC	4		A26	
			65.75MC	3		A27	
			59.75MC	2		A28	

TV ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT (TURRET TYPE TUNER)

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. to Point (D). Low side to chassis.	A29, A30, A31	Adjust for response curve similar to figure 6 with markers at 90%.
15.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response curve similar to figure 6. If markers fall below 70% on any channel, make slight adjustment of A29, A30 and A31 with channel switch set at that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	191.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

OSCILLATOR ALIGNMENT (SWITCH TYPE TUNER)

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
16.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	215.75MC (Unmod.)	13	DC Probe to Point (C). Common to chassis.	A32	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
17.	"	"	209.75MC	12	"		Check all high band channels to see that zero reading as explained above can be obtained well within the range of the fine tuning control. If not compromise adjustment of A32 will be required.
			203.75MC	11			
			197.75MC	10			
			191.75MC	9			
			185.75MC	8			
			179.75MC	7			
18.	"	"	87.75MC	6	"	A33	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
19.	"	"	81.75MC	5	"		Check all low band channels to see that zero reading as explained above can be obtained well within the range of the fine tuning control. If not compromise adjustment of A33 will be required.
			71.75MC	4			
			65.75MC	3			
			59.75MC	2			

THE RF PORTION OF THIS TUNER HAS BEEN PRE-SET AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS PORTION SHOULD NOT BE REQUIRED IN THE FIELD.

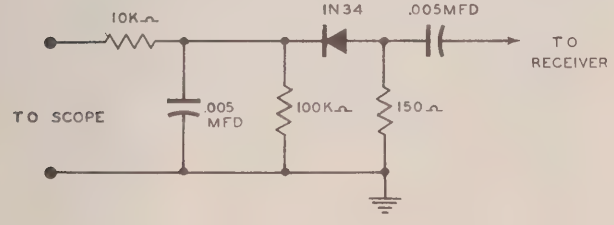


FIG. 1

FIG. 2

FIG. 2A

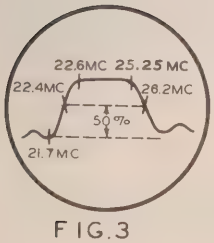


FIG. 3

FIG. 4

FIG. 5

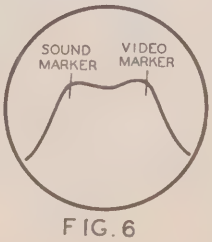


FIG. 6

RADIO ALIGNMENT INSTRUCTIONS MODEL 2D1094A

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
20.	.1MFD	High side to pin 7 (Grid) of 12AT7 (V22). Low side to chassis.	455KC (400 ∿ Mod.)	AM (third position CW)	Tuning gang fully open	Across voice coil	A34, A35, A36, A37	Adjust for maximum output.
21.	.1MFD	"	1620KC	"	"	"	A38	"
22.		Loop	1400KC	"	Tune for max. output	"	A39	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Set dial pointer to 1400KC on AM dial scale.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
23.	2500MMF	High side to stator on rear "FM" section of tuning gang. Low side to chassis.	10.7MC (Unmod.)	FM (max. CW)	Tuning gang fully open	DC Probe to Pon Point◇E◇. Common to chassis.	A40, A41, A42, A43, A44	Adjust for maximum deflection. Repeat the adjustments in the order given.
24.	2500MMF	"	"	"	"	DC Probe to Point◇F◇. Common to chassis.	A45	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Continue with step 25.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
25.	2500MMF	High side to pin 1 (Grid) of 6BA6 (V24) . Low side to chassis.	10.7MC (450KC SWP)	FM (max. CW)	Point of non-interference	Vert. Amp. to Point◇E◇. Common to chassis.	A42, A43, A44	Disconnect stabilizer capacitor C84. Adjust for maximum amplitude and symmetry as per figure 7.
26.	2500MMF	High side to stator on rear "FM" section of tuning gang Low side to chassis.	"	"	"	"	A40, A41	"
27.	2500MMF	"	"	"	"	Vert. Amp. to ◇F◇. Low side to chassis.	A45	Reconnect capacitor C84. Adjust A45 so 10.7MC occurs at center of crossover lines as per figure 8. Slightly retouch A44 for straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
28.	300Ω carbon res.	High side thru 300Ω to ungrounded "FM" antenna terminal. Low side to chassis.	108.5MC (Unmod.)	FM	Tuning gang fully open	DC Probe to Point◇E◇. Common to chassis.	A46	Adjust for maximum deflection.
29.	"	"	104.5MC	"	Tune for max. deflection	"	A47	"

FIG. 7

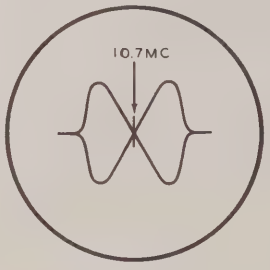


FIG. 8

RADIO ALIGNMENT INSTRUCTIONS MODEL 2D1093A

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
30.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V31). Low side to chassis.	455KC (400 ∿ Mod.)	Radio	Tuning gang fully open	Across voice coil	A48, A49, A50, A51	Adjust for maximum output.
31.	.1MFD	"	1620KC	"	"	"	A52	"
32.		Loop	1400KC	"	Tune for max. output	"	A53, A54	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Set dial pointer to 1400 on dial scale.

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	-1.2VDC	0V	6.3VAC	0V	110VDC	110VDC	0V		
V 2	6J6	90VDC	70VDC	6.3VAC	0V	-5.6VDC	§-4.5VDC	0V		
V 3	6AG5	-1VDC	.4VDC	0V	6.3VAC	115VDC	115VDC	.4VDC		
V 4	6AG5	-.4VDC	.4VDC	6.3VAC	0V	115VDC	115VDC	.4VDC		
V 5	6AG5	0V	1.4VDC	6.3VAC	0V	110VDC	110VDC	1.4VDC		
V 6	6AL5	0V	0V	6.3VAC	0V	1.2VDC	0V	-.7VDC		
V 7	12AT7	95VDC	-.7VDC	0V	6.3VAC	6.3VAC	260VDC	0V	8.5VDC	0V
V 8	12AU7	250VDC	0V	14VDC	6.3VAC	6.3VAC	6VDC	0V	4.7VDC	0V
V 9	6AU6	115VDC	130VDC	0V	6.3VAC	-.8VDC	275VDC	130VDC		
V 10	6BA6	0V	0V	0V	6.3VAC	115VDC	115VDC	1.4VDC		
V 11	6AU6	-.7VDC	0V	6.3VAC	0V	120VDC	80VDC	0V		
V 12	6AL5	.2VDC	-.6VDC	6.3VAC	1.2VAC	0V	0V	-.6VDC		
V 13	6SN7GT	175VDC -25VDC	100VDC	-20VDC 0V	-25VDC	100VDC	20VDC	0V	6.3VAC	
V 14	6S4	0V	3.4VDC 5.6VDC	0V	6.3VAC	0V	0V	0V	0V	370VDC
V 15	6AL5	0V	0V	6.3VAC	0V	4VDC	0V	-4VDC		
V 16	6SN7GT	.6VDC	350VDC	15VDC	-6VDC -8VDC	110VDC	15VDC	0V	6.3VAC	
V 17	6BG6G	-7VDC	6.3VAC	14VDC	0V	-7VDC	0V	0V	300VDC	TOP CAP *
V 18	6W4GT	0V	375VDC	560VDC	0V	380VDC	0V	¶ 380VDC	¶ 380VDC	
V 19	1X2	* DO NOT MEASURE								
V 20	5U4G	0V	400VDC	0V	380VAC	0V	380VAC	150VDC 18VDC	400VDC	
V 21	16TP4	0V	1.3VDC	PIN 10 380VDC	PIN 150VDC	11 18VDC	PIN 12 6.3VAC			

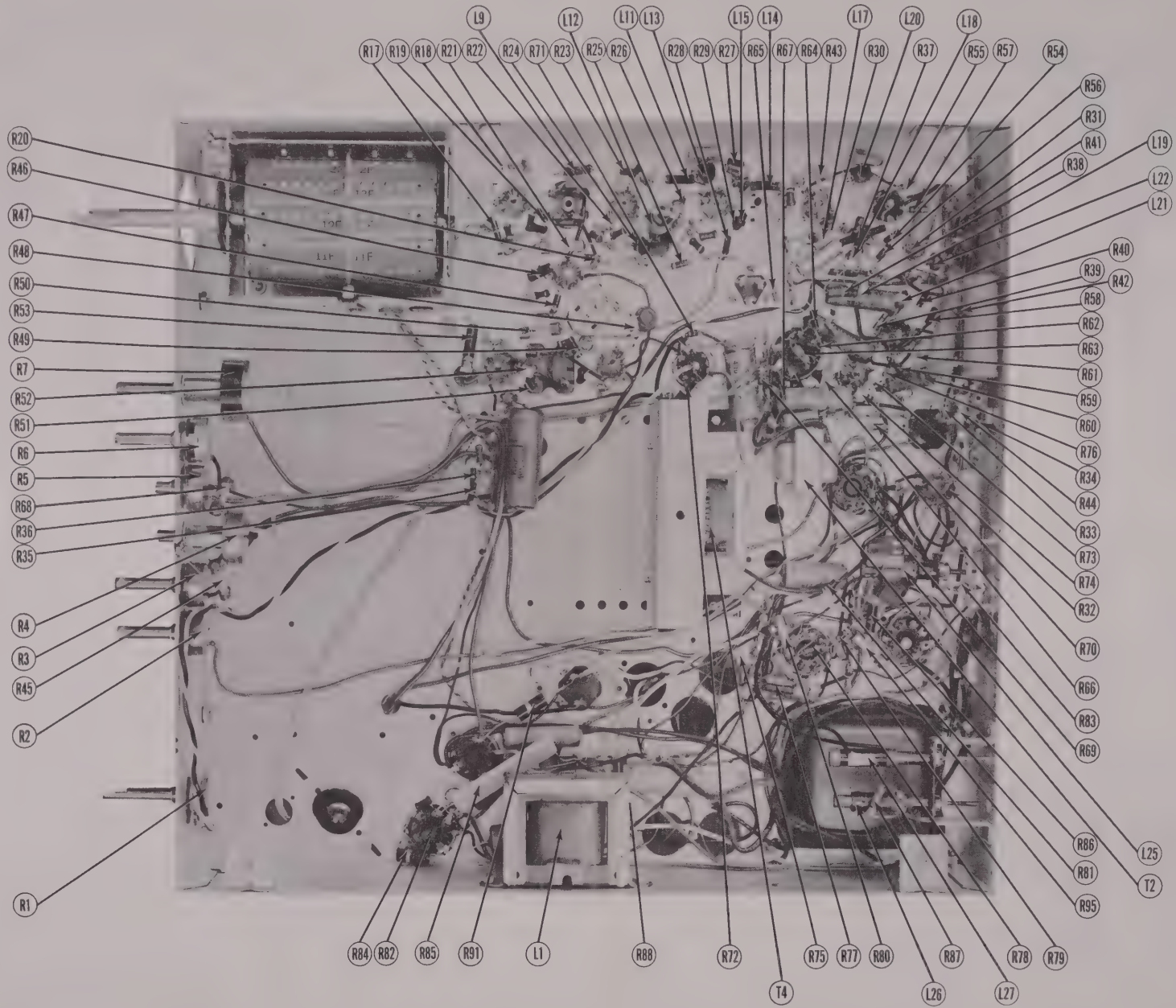
§ TAKEN IN VACUUM TUBE VOLTMETER
¶ 6.3VAC MEASURED ACROSS FILAMENTS
* DO NOT MEASURE

RESISTANCE READINGS

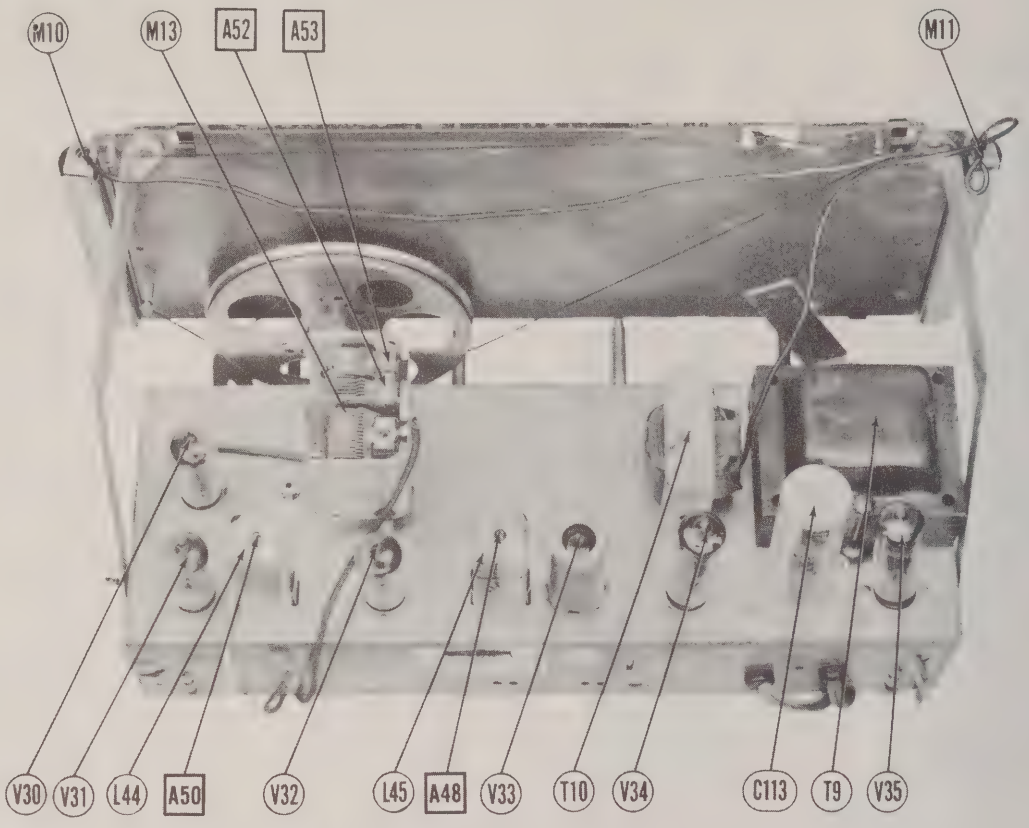
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	1.5 Meg.	0Ω	.1Ω	0Ω	†5KΩ	†5KΩ	0Ω		
V 2	6J6	†7.5KΩ	†18KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6AG5	830KΩ	47Ω	0Ω	.1Ω	†4.5KΩ	†4.5KΩ	47Ω		
V 4	6AG5	830KΩ	33Ω	.1Ω	0Ω	†4.4KΩ	†4.4KΩ	33Ω		
V 5	6AG5	12KΩ	150Ω	.1Ω	0Ω	†5KΩ	†5KΩ	150Ω		
V 6	6AL5	.3Ω	0Ω	.1Ω	0Ω	750KΩ	0Ω	4.7KΩ		
V 7	12AT7	†11KΩ	4.7KΩ	.4Ω	.1Ω	.1Ω	†13KΩ	1 Meg.	22KΩ	0Ω
V 8	12AU7	†5KΩ	1 Meg.	3.1KΩ	.1Ω	.1Ω	†80KΩ	0Ω	47KΩ	0Ω
V 9	6AU6	†36KΩ	†2.8KΩ	0Ω	.1Ω	1.3 Meg.	†1.3KΩ	†2.8KΩ		
V 10	6BA6	0Ω	0Ω	0Ω	.1Ω	†4KΩ	†4KΩ	100Ω		
V 11	6AU6	470KΩ	0Ω	.1Ω	0Ω	†4KΩ	†25KΩ	0Ω		
V 12	6AL5	♦200KΩ #150KΩ	♦100KΩ #95KΩ	.1Ω	2Ω	0Ω	0Ω	♦100KΩ #95KΩ		
V 13	6SN7GT	1.1 Meg. 2.1Meg.	†1.5 Meg. †4 Meg.	0Ω	1 Meg.	†7KΩ	3.3KΩ	0Ω	.1Ω	
V 14	6S4	Inf.	5.8KΩ 820Ω	1.8 Meg.	.1Ω	0Ω	1.8 Meg.	Inf.	Inf.	†1.2KΩ
V 15	6AL5	33KΩ	33KΩ	.1Ω	0Ω	4.8 Meg.	Inf.	4.8 Meg.		
V 16	6SN7GT	5.2 Meg.	†4.8KΩ	1.5KΩ	100KΩ 150KΩ	†270KΩ	1.5KΩ	0Ω	.1Ω	
V 17	6BG6G	1 Meg.	.1Ω	150Ω	Inf.	1 Meg.	Inf.	0Ω	†52KΩ	TOP CAP †22KΩ
V 18	6W4GT	Inf.	†130Ω	†22KΩ	Inf.	†65Ω	Inf.	†50Ω	†50Ω	
V 19	1X2	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP †22KΩ
V 20	5U4G	Inf.	12KΩ	Inf.	20Ω	Inf.	20Ω	100KΩ 200KΩ	12KΩ	
V 21	16TP4	0Ω	850KΩ	PIN 10 †50Ω	PIN 100KΩ	11 200KΩ	PIN 12 .1Ω			

FOCUS CONTROL COUNTERCLOCKWISE
† MEASURED FROM PIN 2 OF V20
♦ TAKEN WITH TV AUDIO CONNECTED TO AM CHASSIS (TV POSITION)
TAKEN WITH TV AUDIO CONNECTED TO AM-FM CHASSIS (TV POSITION)

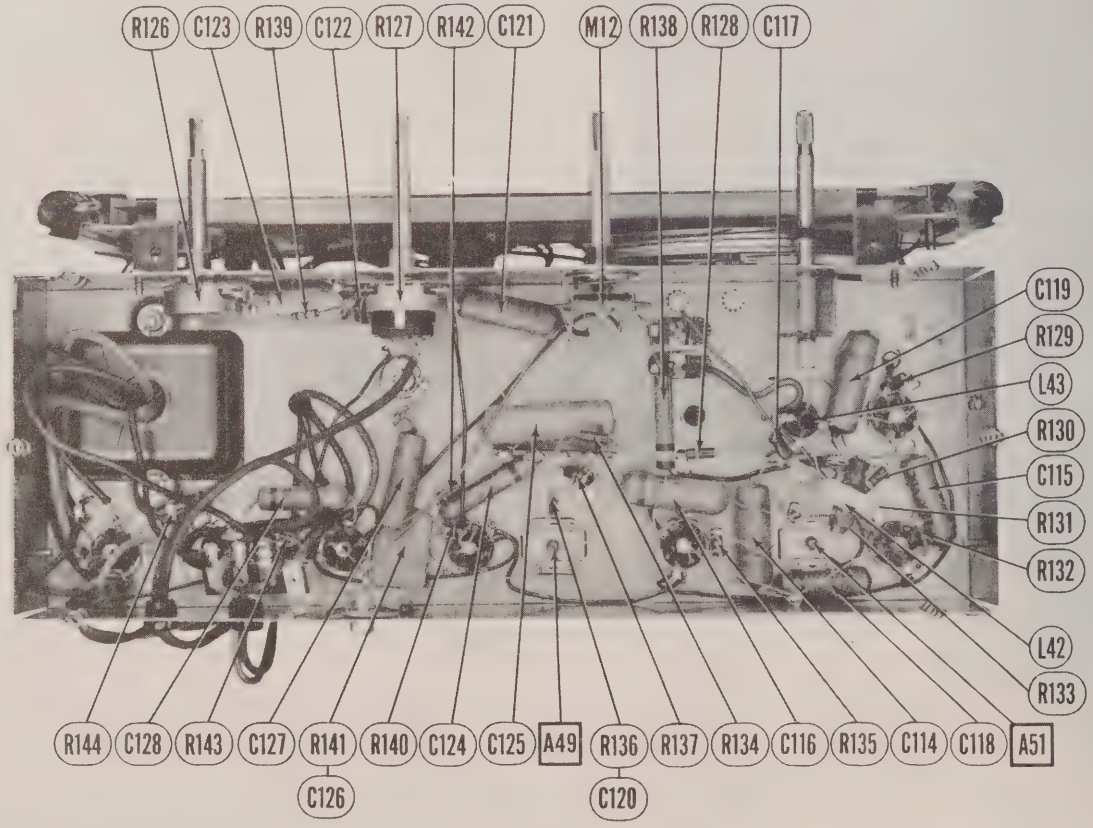
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



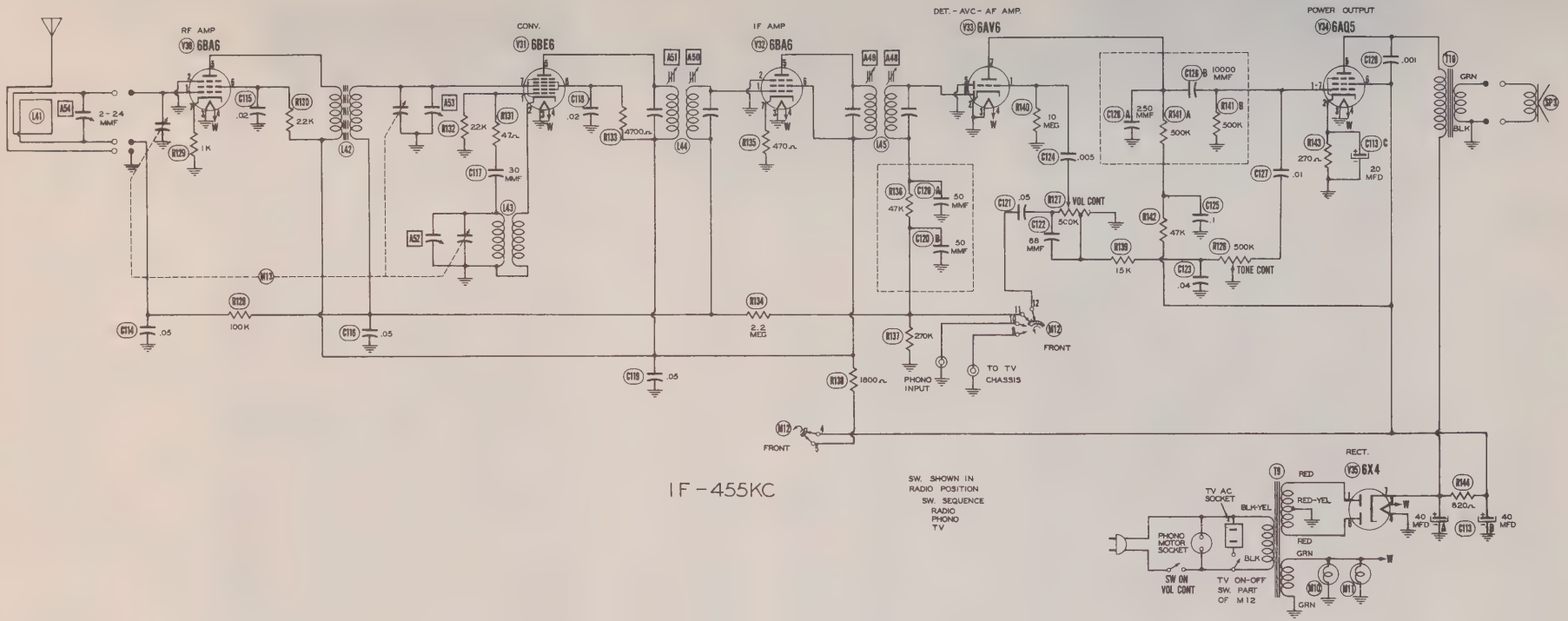
CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



MODEL 2D1093A RADIO CHASSIS-TOP VIEW



MODEL 2D1093A RADIO CHASSIS-BOTTOM VIEW



IF - 455KC

SW. SHOWN IN RADIO POSITION
SW. SEQUENCE
RADIO
PHONO
TV

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V30	6BA6	-.2VDC	0V	0V	6.3VAC	120VDC	90VDC	4VDC
V31	6BE6	1-5.2VDC	0V	0V	6.3VAC	120VDC	95VDC	-.2VDC
V32	6BA6	-.2VDC	0V	0V	6.3VAC	120VDC	120VDC	3.2VDC
V33	6AV6	-.6VDC	0V	0V	6.3VAC	0V	-.4VDC	65VDC
V34	6AQ5	0V	6.6VDC	0V	6.3VAC	160VDC	156VDC	0V
V35	6X4	160VAC	0V	6.3VAC	0V	0V	160VAC	170VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER — FUNCTION SWITCH IN RADIO POSITION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V30	6BA6	2.6 Meg.	0Ω	0Ω	.1Ω	≡2.6KΩ	≡25KΩ	1KΩ
V31	6BE6	22KΩ	.6Ω	0Ω	.1Ω	≡2.6KΩ	≡7.3KΩ	2.5 Meg.
V32	6BA6	2.5 Meg.	0Ω	0Ω	.1Ω	≡2.6KΩ	≡2.6KΩ	470Ω
V33	6AV6	10 Meg.	0Ω	0Ω	.1Ω	0Ω	320KΩ	≡550KΩ
V34	6AQ5	500KΩ	270Ω	0Ω	.1Ω	≡440Ω	≡820Ω	500KΩ
V35	6X4	120Ω	Inf.	.1Ω	0Ω	Inf.	120Ω	55KΩ

≡ MEASURED FROM PIN 7 OF V35

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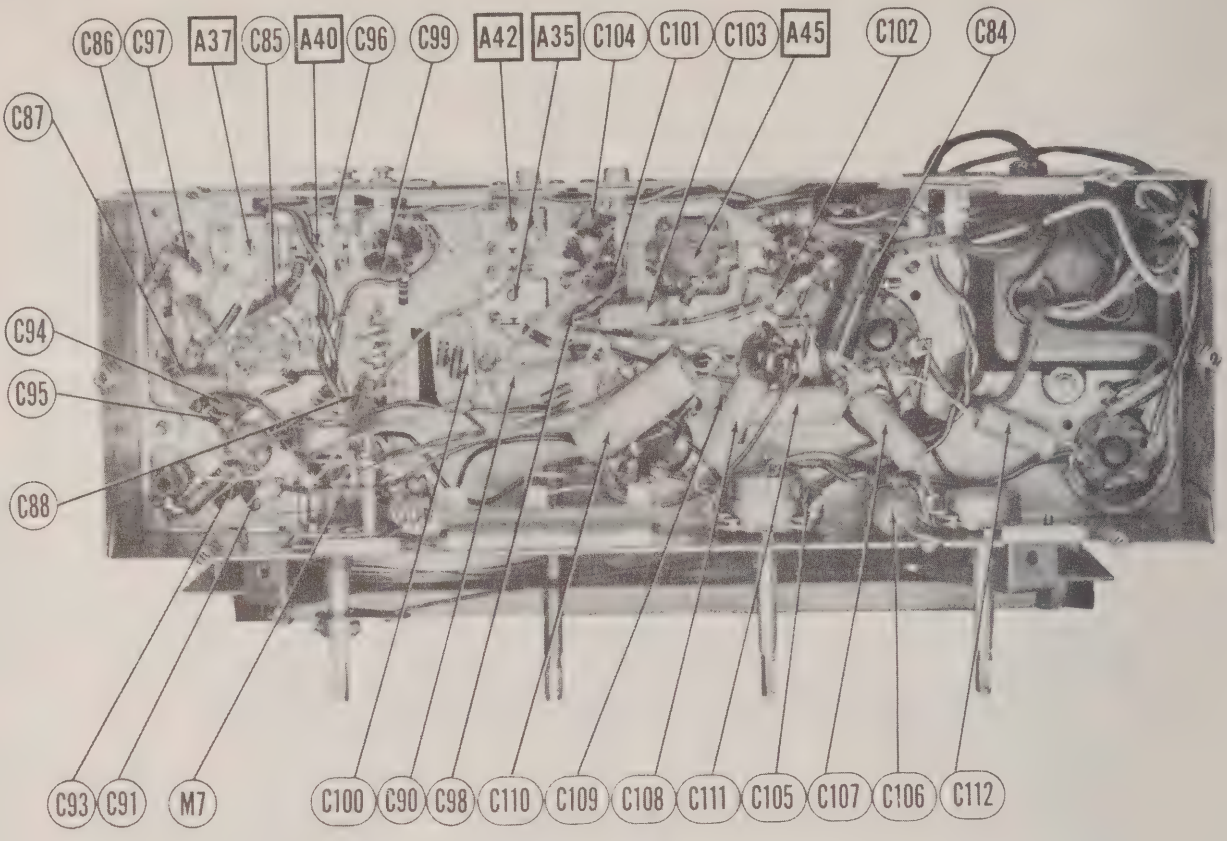
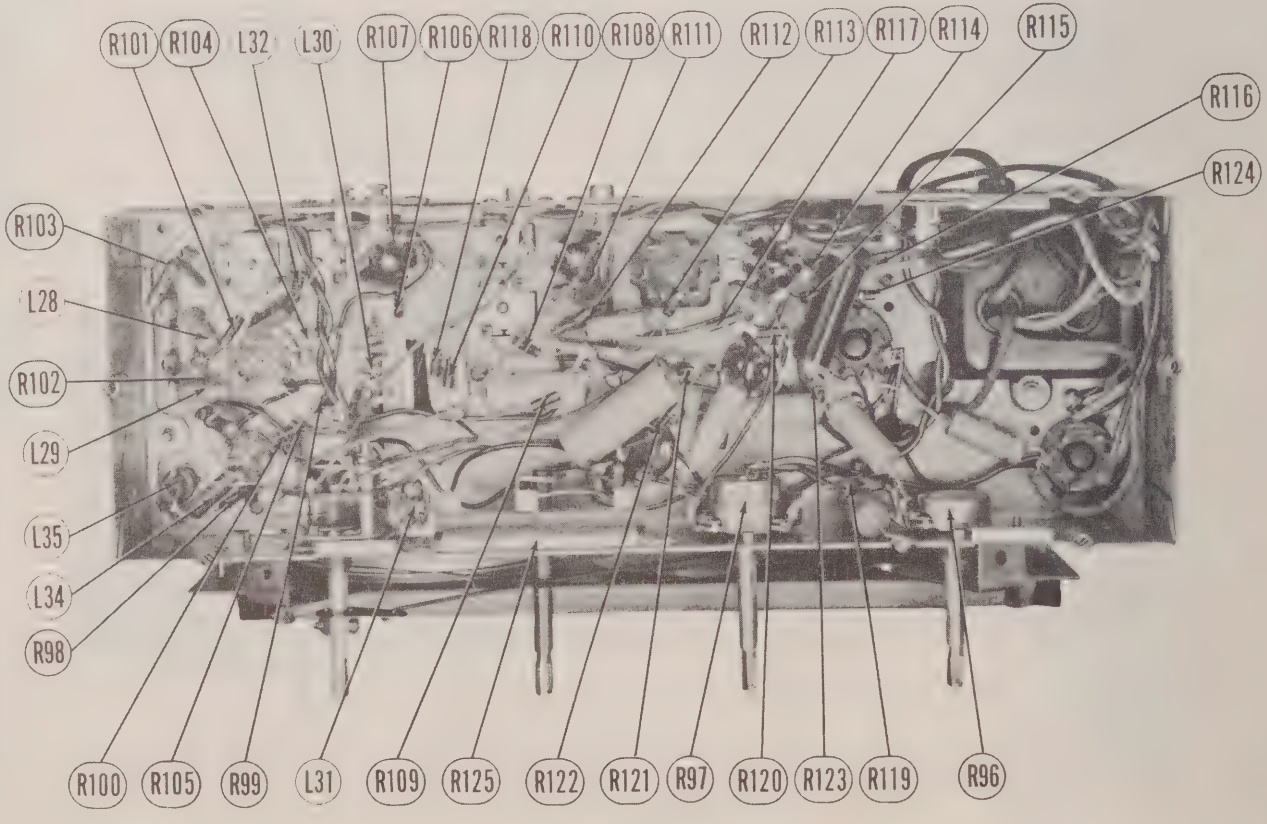
TRUETONE
MODEL 2D1093A

RADIO SCHEMATIC MODEL 2D1093A

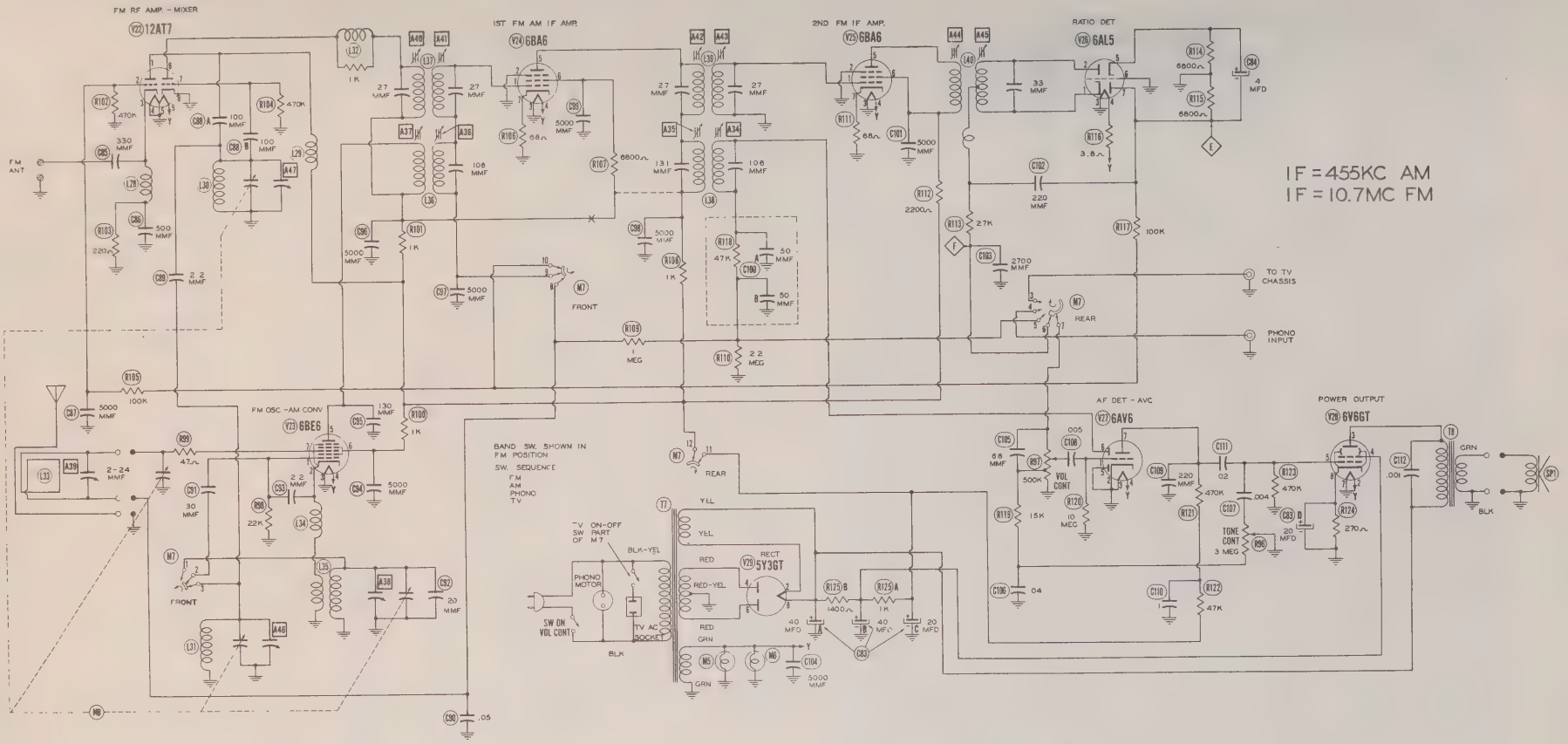
MODELS 2D1093A, 2D1094A
TRUETONE



MODEL 2D1094A RADIO CHASSIS-BOTTOM VIEW



MODEL 2D1094A RADIO CHASSIS-BOTTOM VIEW



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V22	12AT7	140VDC	-1.2VDC	0V	0V	0V	125VDC	0V	0V	6.3VAC
V23	6BE6	††-3.2VDC ‡a -7.2VDC	0V	0V	6.3VAC	125VDC	125VDC ‡100VDC ‡a 85VDC	-.4VDC		
V24	6BA6	-.2VDC	0V	0V	6.3VAC	125VDC	95VDC	‡.8VDC ‡a1.2VDC		
V25	6BA6	0V	0V	0V	6.3VAC	95VDC	95VDC	1.4VDC		
V26	6AL5	‡-1.6VDC	‡2.4VDC	0V	6.3VAC	‡2.6VDC	0V	‡-2.6VDC		
V27	6AV6	-.8VDC	0V	0V	6.3VAC	0V	-.6VDC	60VDC		
V28	6V6GT	0V	6.3VAC	245VDC	185VDC	0V	0V	0V	8.4VDC	
V29	5Y3GT	0V	280VDC	0V	285VAC	0V	285VAC	0V	280VDC	

‡ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V22	12AT7	‡2.4KΩ	150KΩ	220Ω	0Ω	0Ω	‡3.4KΩ	470KΩ	0Ω	.1Ω
V23	6BE6	22KΩ	2.5Ω	0Ω	.1Ω	‡3.4KΩ	‡3.4KΩ	‡3.2 Meg. a1.4 Meg.		
V24	6BA6	‡120KΩ a1.4 Meg.	0Ω	0Ω	.1Ω	‡3.4KΩ	‡10KΩ	68Ω		
V25	6BA6	1Ω	0Ω	0Ω	.1Ω	‡4.8KΩ	‡4.8KΩ	68Ω		
V26	6AL5	‡525KΩ a Inf.	‡525KΩ a Inf.	0Ω	.3Ω	6.8KΩ	0Ω ‡2.2 Meg. a500KΩ	6.8KΩ		
V27	6AV8	10 Meg.	0Ω	0Ω	.1Ω	0Ω	‡520KΩ			
V28	6V6GT	Inf.	.1Ω	‡475Ω	‡3.4KΩ	470KΩ	.6Ω	0Ω	270Ω	
V29	5Y3GT	Inf.	60KΩ	Inf.	100Ω	Inf.	100Ω	Inf.	60KΩ	

‡ MEASURED FROM PIN 8 OF V29

† TAKEN IN FM POSITION
‡ TAKEN IN AM POSITION

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TRUETONE MODEL 2D1094A

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MODELS 2D1093A, 2D1094A

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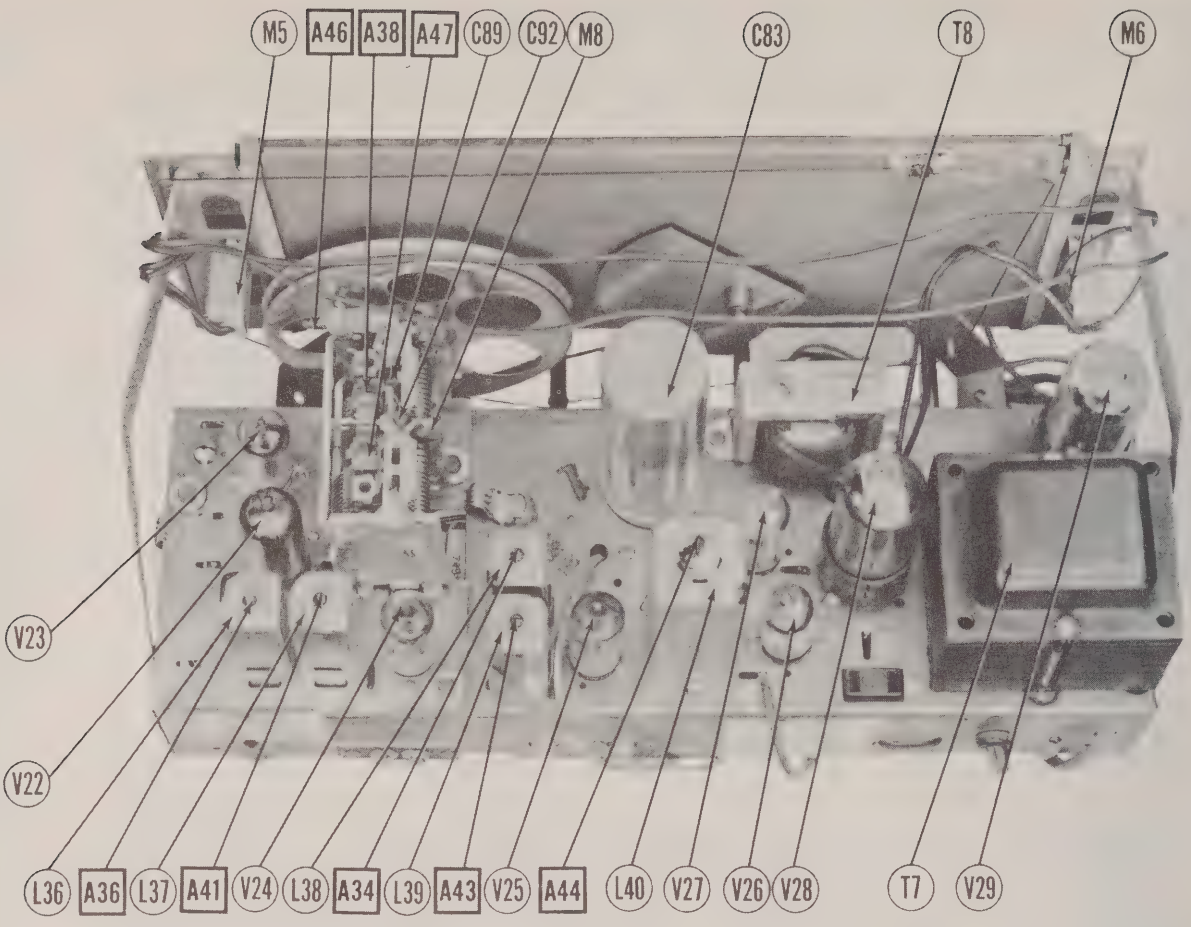
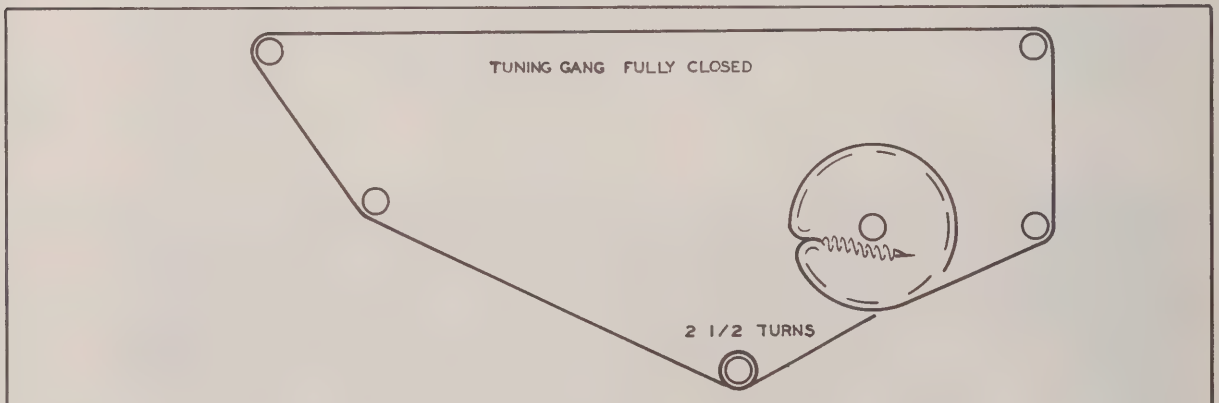
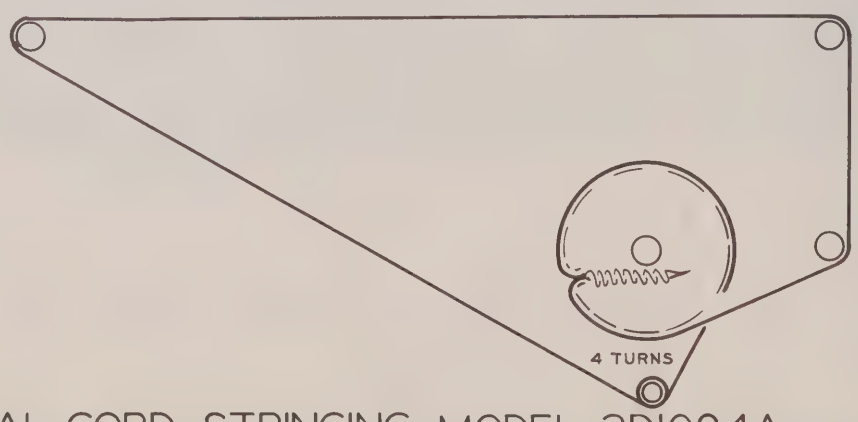


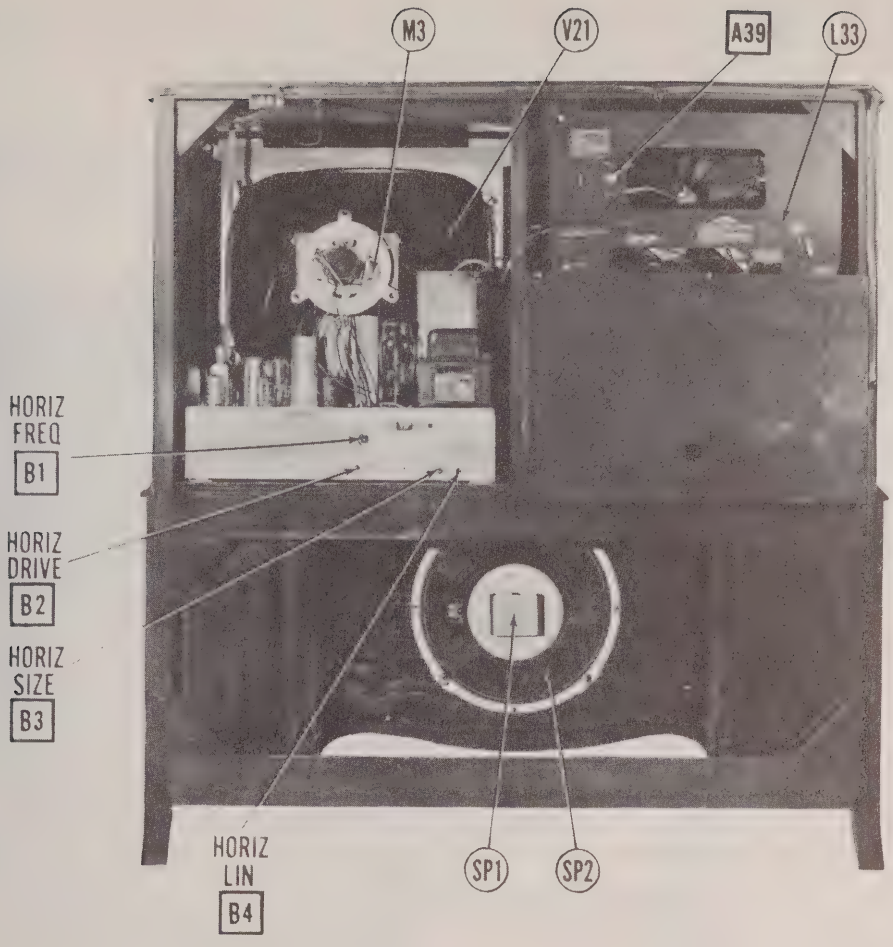
MODEL 2D1094A-RADIO CHASSIS-TOP VIEW



DIAL CORD STRINGING MODEL 2D1093A



DIAL CORD STRINGING MODEL 2D1094A



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in TV station, preferably a test pattern.

Turn the horizontal hold control to the mid position of its range.

Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Turn the horizontal drive trimmer (B2) counter-clockwise until white bars appear in left side of the picture, and then turn the trimmer clockwise just far enough to remove the bars.

Adjust the horizontal size slug (B3) until the picture fills the mask horizontally.

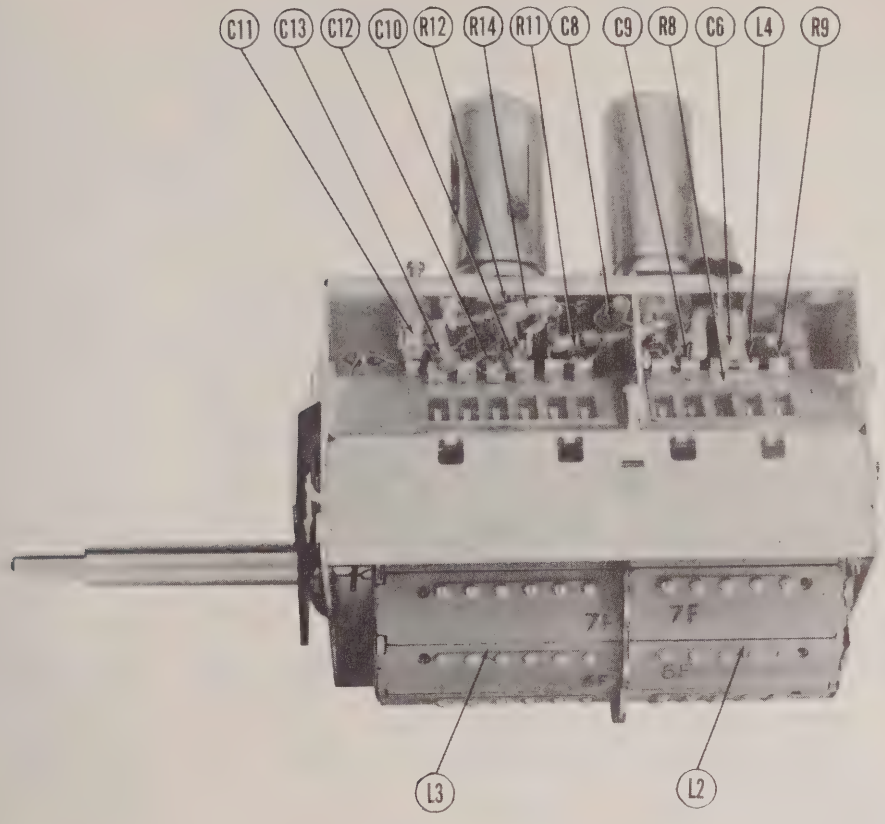
Adjust the horizontal linearity slug (B4) until the picture is symmetrical from left to right. Slight readjustment of B2 may be required to obtain best linearity.

DISASSEMBLY INSTRUCTIONS

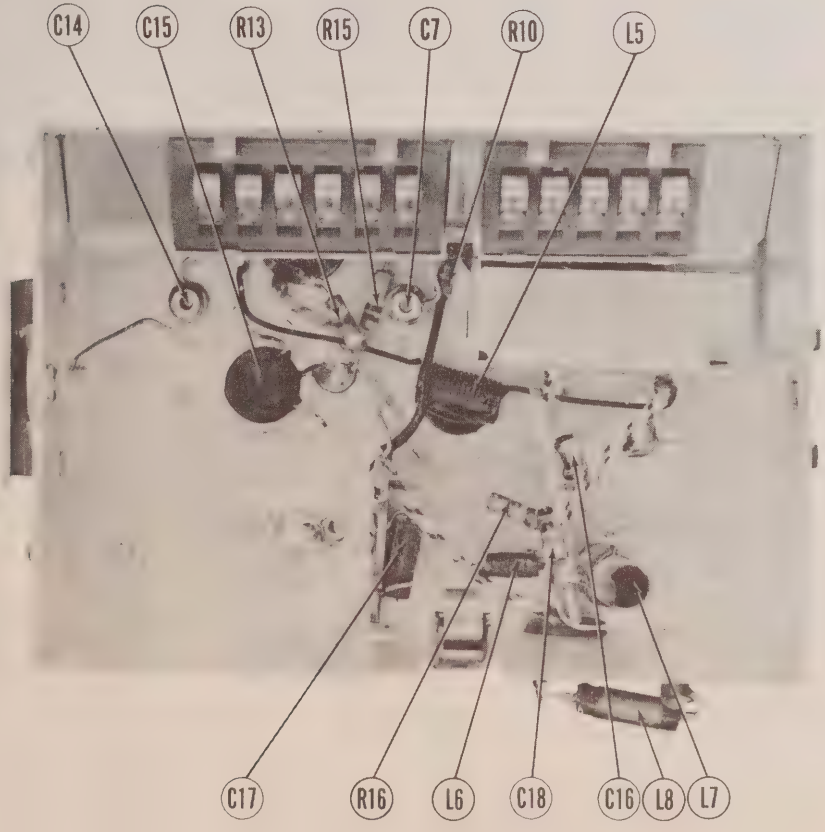
I. CHASSIS REMOVAL:

1. Remove three push-on type control knobs.
2. Remove six wood screws holding rear cover in place. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove antenna terminal strip.
5. Remove speaker leads from rear of radio.
6. Remove five 5/16" hex head bolts securing chassis to cabinet. Remove chassis.
7. Remove four 5/16" hex nuts from speaker. Remove speaker.

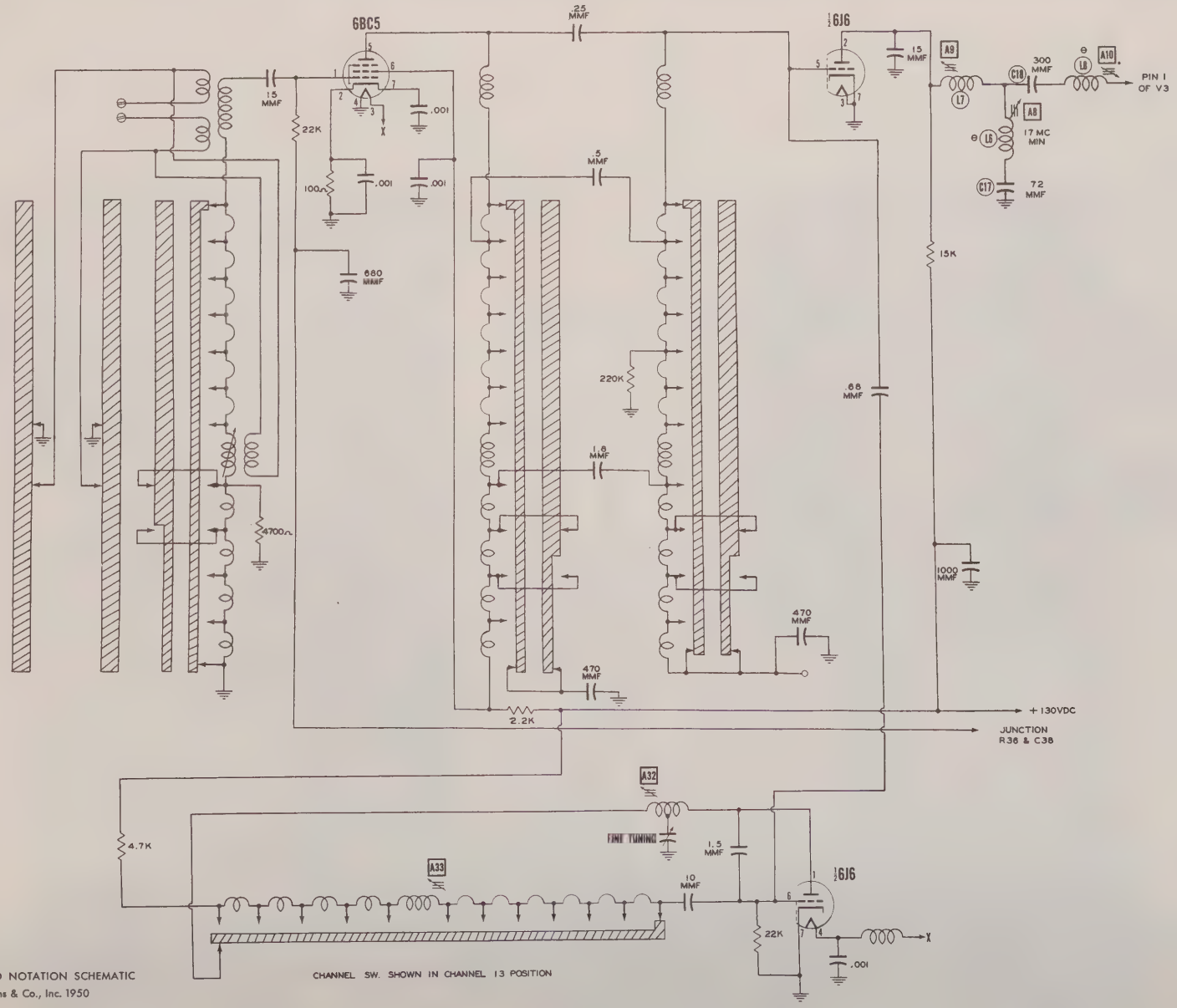
NOTE: FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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CHANNEL SW. SHOWN IN CHANNEL 13 POSITION

ALTERNATE TUNER SCHEMATIC

TV PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
V1A	RF Amplifier	6BC5	6BC5	7BD	
B	RF Amplifier	6CB6	6CB6	6CK	
C	RF Amplifier	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6AG5	6AG5	7BD	
V4	2nd Video IF Amp.	6AG5	6AG5	7BD	
V5	3rd Video IF Amp.	6AG5	6AG5	7BD	
V6	Video Det.-DC Restorer	6AL5	6AL5	6BT	
V7	Video Amp.-Sync. Amplifier	12AT7	12AT7	9A	
V8	Video Output-Sync. Sep.	12AU7	12AU7	9A	
V9	AGC Keying	6AU6	6AU6	7BK	
V10	1st Sound IF	6BA6	6BA6	7BK	
V11	Limiter	6AU6	6AU6	7BK	
V12	Discriminator	6AL5	6AL5	6BT	
V13	Vert. Osc.-Phase Inverter	6SN7GT	6SN7GT	8BD	
V14	Vert. Output	6S4	6S4	9AC	
V15	Hor. Phase Det.	6AL5	6AL5	6BT	
V16	Hor. Mult.	6SN7GT	6SN7GT	8BD	
V17	Hor. Output	6BG6G	6BG6G	5BT	
V18	Damper	6W4GT	6W4GT	4CG	
V19 A	HV Rectifier	1X2	1X2	7CB	
V20 B	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	
V21	Picture Tube	16TP4	16TP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	80	450	45X376	AF164J		UPT44445		TVL-2777	● Filter
B	30	450							▲ Filter
C2A	80	450	45X376	AF164J		UPT44445		TVL-2777	● Filter
B	30	450							▲ Filter
C3A	10	450	45X375	AF22J8B		UPT1145V4		TVL-3749	■ Filter
B	10	450							▲ Filter
C	40	50							Vert. Output Cathode
C4	5	25	45X378	PRS150/4		BR550		TVA-1203	Sync. Amp. Cathode
C5	5			SI5NPO	TCZ-4.7		NPOK-5		Fixed Trimmer
C6	.5-3				829-3				Variable Trimmer
C7	.5-3				829-3				Variable Trimmer
C8	120			SI120	D6-121		GP2K-120	19C29	RF Amp. Screen
C9	1000			DI1000	D6-102		GP2L-001	19C1	RF Amp. Filament
C10	100			SI100N750	TCN-100		N750L-100	29C16	RF Coupling
C11	.5-3				829-3				Variable Trimmer
C12	20			SI20NPO	TCZ-20		NPOK-20		Osc. Grid Cap.
C13	10			SI10N750	TCN-10		N750K-10	19C4	Fixed Trimmer
C14	.5-3				829-3				Variable Trimmer
C15A	1000			BPD-2X001	DD-2-102		812-2X001	29C7	RF Bypass
B	1000								Conv. Fil. Bypass
C16	10			SI10NPO	TCZ-10		NPOK-10	19C3	Fixed Trimmer
C17	72	500					NPOM-72		Fixed Trimmer
C18	300			SI300	D6-301		GP2K-300	19C31	IF Coupling
C19	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	AGC Filter
C20	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	RF Bypass
C21	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	1st V. IF Dec.
C22	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	1st V. IF Fil.
C23	47		47X519	SI47NPO	TCZ-47		NPOM-47	29C14	Fixed Trimmer
C24	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-270	19C31	IF Coupling
C25	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	AGC Filter
C26	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	RF Bypass
C27	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	2nd V. IF Dec.
C28	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	2nd V. IF Fil.
C29	51			SI50NPO	TCZ-51	5R5Q5	NPOM-50		Fixed Trimmer
C30	270	500	47X445	1468-00025	D6-271	5W5T25	GP1K-47	19C31	IF Coupling
C31	47	500	47X565	1469-00005	TCZ-47	5R5Q5	NPOM-50	29C14	Fixed Trimmer
C32	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	RF Bypass
C33	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	3rd V. IF Dec.
C34	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	3rd V. IF Cathode
C35	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	3rd V. IF Fil.
C36	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-270	19C31	IF Coupling
C37	5		47X562	SI5NPO	TCZ-4.7	5W5V5	NPOK-5	MS-55	V. Diode Filter
C38	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	V. Det.-DC Res. Fil.
C39	360	500	47X568	1469-00035	TCN-360				Fixed Trimmer
C40	43		47X563		TCZ-43		NPOL-43		Peaking
C41	.05	400	D67503	P488-05	DF-503	PTE4S5		4TM-S5	Video Coupling
C42	.05	400	D67503	P488-05	DF-503	PTE4S5		4TM-S5	Video Coupling
C43	.1	600	F65104	P688-1	DF-104	PTE6P1		6TM-P1	Video Coupling
C44	.05	400	D67503	P488-05	DF-503	PTE4S5		4TM-S5	Video Coupling
C45	.1	200	B65104	P288-1	DF-104	PTE4P1		2TM-P1	Picture Tube Cath.
C46	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	1st S. IF Dec.
C47	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	1st S. IF Cathode
C48	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	Limiter Grid Filter
C49	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	Limiter Plate Dec.
C50	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	Limiter Screen
C51	270	500	47X445	1468-00025	D6-271	5W5T25	GP2K-270	1FM-325	RF Bypass
C52	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	Discr. Fil. Bypass
C53	.1	400	D65104	P488-1	DF-104	PTE4P1		4TM-P1	Sync. Coupling
C54	1000	500	47X569	1467-001	D6-102	1W5D1	GP2L-001	1FM-21	Hor. Sweep Coupling
C55	.05	400	D67503	P488-05	DF-503	PTE4S5		4TM-S5	AGC Filter
C56	.5	200	B65504	P288-5		GT2P5		2TM-P5	AGC Filter
C57	.5	200	B65504	P288-5		GT2P5		2TM-P5	AGC Filter
C58	1000		47X519	SI1000	D6-102	1W5D1	GP2L-001	19C1	AGC Filter
C59	.05	400	D67503	P488-05	DF-503	PTE4S5		4TM-S5	Sync. Coupling
C60A	2000		D65202	P688-002		PTE6D2	GP2M-002	6TM-D2	Integrator Net
B	5000		D65502	P688-005	PC-100	PTE6D5	811-005	6TM-D5	Integrator Net
C	5000		D65502	P688-005		PTE6D5	811-005	6TM-D5	Integrator Net
C61	4700	500	47X543	1467-005	D6-472	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid

TV PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No	RATING CAP.	RATING VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C62	.05	600	F65503	P688-05		PTE6S5		6TM-S5	Vert. Discharge
C63	.25	400	D65254	P488-25		GT4P25		4TM-P25	Vert. Sweep Coupling
C64	1000		47X519	S11000	D6-102	1W5D1	GP2L-001	19C1	Hor. Sync. Coupling
C65	1000		47X519	S11000	D6-102	1W5D1	GP2L-001	19C1	Hor. Sync. Coupling
C66	.05	600	F67503	P688-05	DF-503	PTE6S5		6TM-S5	Hor. Feedback
C67	.01	200	B65103	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Voltage Divider
C68	.005	400	B65502	P688-005	D6-502	PTE6D5	811-005	6TM-D5	AFC Filter
C69	.05	200	B65503	P388-05	DF-503	PTE4S5		2TM-S5	AFC Filter
C70	330	500	47X570	1468-00035	D6-331	5W5T3	GP2K-330	1FM-335	Hor. MV Feedback
C71	3900	500	47X572	1464-004		1DR5D4		MS-24	Fixed Trimmer
C72	270	500	47X445		TCZ-270				Hor. Discharge
C73	390	500	47X571	1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	Hor. Sweep Coupling
C74	.05	600	F67503	P688-05	DF-503	PTE6S5		6TM-S5	Hor. Output Screen
C75	.5	200	B65504	P288-5		GT2P5		2TM-P5	Hor. Output Cathode
C76	.03	400	D65303	P488-03		PTE6S3		6TM-S3	Damper Filter
C77	.05	400	D67503	P488-05		PTE4S5		4TM-S5	Damper Filter
C78	.25	200	D65254	P488-25		GT2P25		2TM-P25	Hor. Sweep Coupling
C79	500	20000	47X560	HV20C	TV3-502				H.V. Filter
C80	.01	400	46X410	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter
C81	.01	400	46X410	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter
C82	1000		47X519	S11000	D6-102	1W5D1	GP2L-001	19C1	Hor. Output Screen

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	3000Ω	½	40X303		AG-15-S	B-12-S	Contrast control
B	Shaft		Not Req.		FS-3	Not Req.	Attach to R1A per instructions
R2A	50KΩ	½	40X292	Q11-123 *	AG-44-S	B-31 *	Horizontal hold control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach to R2A per instructions
R3A	500KΩ	½	40X290	Q11-133 *	AG-58-S	B-59 *	Brightness control
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Attach to R3A per instructions
R4A	5000Ω	½	40X294	Q11-114 *			Vert. Linearity control
B	Sleeve Brushing		Not Req.	S-3			Attach to R4A per instructions
R5A	2.5Meg	½	40X293	Q11-239	AG-84-S	B-83 *	Height control
B	Shaft		Not Req.	RQ	FKS-1/4	Not Req.	Attach to R5A per instructions
R6A	1.5Meg	½	40X291	Q11-138 *	AG-83-S	B-75 *	Vert. hold control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R6A per instructions
R7	4000Ω	2	40X302				Focus control - wire wound

* Fashion Slot To Duplicate Original

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE STATED
R8	3900Ω	½	B84392	BTS-3900	Antenna Coil Shunt
R9	47KΩ 20%	½	B84470	BTS-47K	AGC Filter Network
R10	2200 20%	½	B84222	BTS-2200	RF Amp. Load
R11	10KΩ	½	B84103		RF Coil Shunt
R12	10KΩ	½	B84103		Osc. Grid
R13	4700Ω	½	B83472	BTS-4700	Osc. Plate
R14	4700Ω	½	B83472	BTS-4700	Mixer Grid
R15	220KΩ 20%	½	B84224		Mixer Grid
R16	15KΩ 20%	½	B84153		Mixer Plate
R17	10KΩ	½	B84103		1st Video IF Amp. Grid
R18	47Ω 5%	½	B83470		1st Video IF Amp. Cathode
R19	1000Ω	½	B84102	BTS-1000	1st Video IF Amp. Decoup.
R20	150Ω	½	B84151	BTS-150	Decoup.
R21	1200Ω	½	B84122	BTS-1200	AGC Network - See Note 1
R22	8200 5%	½	B83822		2nd Video IF Amp. Grid
R23	33Ω 5%	½	B83330		2nd Video IF Amp. Cathode
R24	1000	½	B84102	BTS-1000	2nd Video IF Amp. Decoup.
R25	330Ω	½	B84331	BTS-330	Decoup.
R26	12KΩ 5%	½	B83123		3rd Video IF Amp. Grid
R27	150Ω	½	B84151	BTS-150	3rd Video IF Amp. Cathode
R28	2200Ω 20%	½	B84222	BTS-2200	3rd Video IF Amp. Decoup.
R29	22KΩ	½	B84223		RF Choke Coil Shunt
R30	4700Ω 5%	½	B83472	BTS-4700-5%	Video Det. Diode Load
R31	33KΩ 20%	½	B84333	BTS-33K	AGC Keying Grid
R32	22KΩ	½	B84223	BTS-22K	AGC Network
R33	820KΩ	½	B84824	BTS-820K	AGC Network
R34	470KΩ 20%	½	B84474	BTS-470K	AGC Network
R35	150KΩ	½	B84154	BTS-150K	AGC Filter
R36	1000Ω	½	B84102	BTS-1000	AGC Network
R37	5600Ω	1	C83561	BTA-5600	Video Amp. Plate
R38	2700Ω	1	C83272	BTA-2700	Voltage Divider
R39	1Meg	½	B84105	BTS-1Meg	Video Output Grid
R40	100Ω	½	B84101	BTS-100	Video Output Cathode
R41	3900Ω 5%	1	C83392	BTA-3900-5%	Video Output Plate
R42	10KΩ	½	B84103	BTS-10K	Isolation
R43	750KΩ 20%	½	B84754	BTS-820K	DC Restorer Diode Load - See Note 2
R44	100KΩ	½	B84104	BTS-100K	Picture Tube Grid
R45	100KΩ	½	B84104	BTS-100K	Voltage Divider
R46	100Ω	½	B84101	BTS-100	Sound IF Amp. Cathode - See Note 3
R47	1000Ω	½	B84102	BTS-1000	Sound IF Amp. Decoup.
R48	470KΩ	½	B84474	BTS-470K	Limiter Grid
R49	22KΩ	½	B84223	BTS-22K	Limiter Screen
R50	1200Ω	½	B84122	BTS-1200	Limiter Plate Decoup.- See Note 1
R51	100KΩ 20%	½	B84104	BTS-100K	Disc.Diode Load
R52	100KΩ 20%	½	B84104	BTS-100K	Disc.Diode Load
R53	3.9Ω	½		BW-½-3.9	Disc.Filament - See Note 4
R54	1Meg	½	B84105	BTS-1Meg	Sync. Amp. Grid
R55	10KΩ	½	B84103	BTS-10K	Isolation
R56	22KΩ	½	B84223	BTS-22K	Sync. Amp. Cathode
R57	12KΩ	½	B84123	BTS-12K	Sync. Amp. Plate
R58	2200Ω 20%	½	B84222	BTS-2200	Isolation
R59	47KΩ	½	B84473	BTS-47K	Sync. Sep. Cathode
R60	820KΩ	½	B84824	BTS-820K	Sync. Sep. Plate
R61	68KΩ	½	B84683	BTS-68K	Voltage Divider
R62	1Meg	½	B84105	BTS-1Meg	Phase Splitter Grid
R63	3300Ω 5%	½	B83332	BTS-3300-5%	Phase Splitter Cathode
R64	1000Ω	½	B84102	BTS-1000	Phase Splitter Plate

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
R65	3300Ω 5%	½	B83332	BTS-3300-5%	Decoup.
R66A	32KΩ	½	*	BTS-22K	Integrator
B	8200Ω	½		BTS-8200	Integrator
C	8200Ω	½		BTS-8200	Integrator
R67	1Meg	½	B84105	BTS-1Meg	Voltage Divider
R68	100KΩ	½	B84104	BTS-100K	Voltage Divider
R69	1.5Meg	½	B84155	BTS-1.5Meg	Vert. Osc. Plate - See Note 5
R70	8200Ω	½	B84822	BTS-8200	Vert. Peaking
R71	1.8Meg	½	B84185	BTS-1.8Meg	Vert. Output Grid
R72	820Ω	½	B84821	BTS-820	Vert. Output Cathode
R73	100KΩ 20%	½	B84104	BTS-100K	Horiz. Phase Disc.Diode Load
R74	100KΩ 20%	½	B84104	BTS-100K	Horiz. Phase Disc.Diode Load
R75	4.7Meg	½	B84475	BTS-4.7Meg	Horiz. Phase Disc.Diode Load
R76	33KΩ	½	B84333	BTS-33K	Horiz. Phase Disc.Diode Load - See Note 7
R77	470KΩ	½	B84474	BTS-470K	Horiz. AFC Filter
R78	1500Ω	½	B84152	BTS-1500	Horiz. MV Cathode
R79	4700Ω 5%	½	B83472	BTS-4700-5%	Horiz. MV Plate
R80	100KΩ	½	B84104	BTS-100K	Horiz. MV Grid
R81	270KΩ	½	B84274	BTS-270K	Horiz. MV Plate
R82	150Ω	½	B84151		Parasitic Supp.
R83	1Meg 20%	½	B84105	BTS-1Meg	Horiz. Output Grid
R84	150Ω	2	D84151	BTB-150	Horiz. Output Cathode
R85	30KΩ	10	43X255		Horiz. Output Screen - Wire Wound
R86	22KΩ 5%	1	C83223	BTA-22K-5%	Horiz. Feedback
R87	4700Ω 20%	½	B84472	BTS-4700	Horiz. Linearity Coil Shunt
R88	22KΩ 20%	2	D84223	BTB-22K	Voltage Divider
R89	1Ω	½	43X249		HV Rectifier Filament
R90	1.2Meg	1	C84125		HV Filter - See Note 2
R91	100Ω	2	D84101	BW-2-100	Focus Coil Shunt
R92	1000Ω	10	43X248	1 3/4A-1000	Filter - Wire Wound
R93	1500Ω	10	43X246	1 3/4A-1500	Filter - Wire Wound
R94	10KΩ	5	43X247	1 3/4A-10K	Bleeder - Wire Wound
R95	100KΩ	½	B84104	BTS-100K	Voltage Divider - See Note 6

Note 1. Some Models Use 1000Ω Resistor In This Application.
Note 2. Some Models Use 1Meg Resistor In This Application.
Note 3. Some Models Use 82Ω Resistor In This Application.
Note 4. Some Models Use 5.1Ω Resistor In This Application.
Note 5. When The Vert. Output Tube Is A 6AQ5, Resistor R69 Is 470KΩ.
Note 6. Not Used In All Models.
Note 7. Some Models Use A 27KΩ Resistor In This Application.
* Items R66A, R66B, R66C, C60A, C60B, And C60C Are Combined Into One Unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ⓐ 1.6A	770VAC .2ADC	6.3VAC ⓐ 6.7A	6.3VAC ⓐ 1.18A SEC. 4 5VAC ⓐ 2.9A	53X308	P-8154 ④ P-6134 ⑤	P-3067	TP-392

④ File Out Two Holes.
⑤ Mount As Space Permits And Use For Sec.No. 3.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	175Ω	1300Ω	54X5	A-8111 ①	A-3000 ① HVO-6 And MWC-1 ③	TBO-2 ①	Vert. Osc. Trans.
T3	450Ω	0Ω	53X311				
	Tapped ⓐ 65Ω	SEC. 2 9.1 Tapped ⓐ .4Ω And 6.8Ω SEC. 3 4.5Ω					Hor. Output Trans.
T4	1200Ω Tapped ⓐ 11Ω		51X149	A-8112	A-3037		Vert. Output Trans.
T5A	15Ω		9A2115		MD-70F		Horiz. Deflection Coil
B	50Ω						Vert. Deflection Coil. Focus Coil (EM-PM)
T6	350Ω		9A2148				

① Drill One New Mtg. Hole.
③ Connect AGC Lead To AGC Coil On Width Coil.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.200A	51Ω	2 Henries	52X88	C-2326	C-2991	TR-3300①	① Drill One New Mtg. Hole

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA TRUETONE PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L2	Antenna Coil	0Ω	0Ω			
L3	RF Mixer Grid And Osc. Coils	0Ω				
L4	Fil. Choke	0Ω				
L5	Fil. Choke	0Ω				
L6	Conv. Plate Trap	.5Ω				Adj. When Switch Type Tuner Is Used.
L7	1st Video IF	.5Ω				
L8	1st Video IF Coupling	1.2Ω				Adj. When Switch Type Tuner Is Used
L9	Fil. Choke	0Ω		9A2033		
L10	2nd Video IF-Sound Take Off	.3Ω	.1Ω	9A2076		
L11	Fil. Choke	0Ω		9A2033		
L12	3rd Video IF	.3Ω	0Ω	9A2055		Includes Trap
L13	Cathode Trap	.1Ω	.1Ω	9A2073		
L14	Fil. Choke	0Ω		9A2033		
L15	RF Choke	2.7Ω		9A1979		
L16	4th Video IF	.3Ω	.2Ω	9A2071		Includes Trap
L17	Peaking	10Ω		9A2090	19-1923	390 Microhenries Green Dot
L18	Peaking	6.8Ω		9A2086	19-1920 *	95 Microhenries Yellow Dot Wound On 4.7KΩ Resistor
L19	Peaking	6.5Ω		9A2088	19-1922	196 Microhenries Blue Dot
L20	Sound Trap	.4Ω		9A2074		
L21	Peaking	5.5Ω		9A2087	19-1921	125 Microhenries White Dot
L22	Peaking	6.8Ω		9A2089	19-1921 †	183 Microhenries Red Dot Wound On 2.2KΩ Resistor
L23	Sound IF	.2Ω	.2Ω	9A1986		
L24	Disc. Trans.	.1Ω	.2Ω	9A2049		
L25	Horiz. Freq.	40Ω		9A2096		
L26	Horiz. Lin.	24Ω		9A2111		
L27	Horiz. Size	.3Ω		9A1976		

* Parallel With 4.7KΩ Resistor
† Parallel With 2.2KΩ Resistor

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	RF Tuner	25A1071	
M2	Fuse	16X147	.25A 250V Type MDL
M3	Ion Trap	2A401	
B2	Trimmer	17A261	Horiz. Drive 40-370MMF
	Safety Glass	17X120	Model 2D1094A
	Safety Glass	17X122	Model 2D1093A
	Escutcheon	4X1065	Channel Selector
	Escutcheon	4X1029	Contrast
	Escutcheon	4X1089	Control Panel Model 2D1094A
	Escutcheon	4X1102	Control Panel Model 2D1093A
	Knob	10A741	Channel Selector
	Knob	10A742	Fine Tuning
	Knob	10A756	Contrast

PARTS LIST AND DESCRIPTIONS MODEL 2D1094A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA TRUETONE PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V22	FM RF Amp.-Mixer	12AT7	12AT7	9A	
V23	FM Osc.-AM Conv.	6BE6	6BE6	7CH	
V24	1st FM- AM IF Amp.	6BA6	6BA6	7BK	Used in model 2D1094A
V25	2nd FM IF Amp.	6BA6	6BA6	7BK	
V26	Ratio Det.	6AL5	6AL5	6BT	
V27	AM Det.-AVC	6AV6	6AV6	7BT	
V28	Power Output	6V6GT	6V6GT	7AC	
V29	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C83A	40	350	45X359	AF684H4A		UP4345C		TVL-4732	▲ Filter
B	40	350				BR4035		TVA-1608	■ Filter
C	20	350							▲ Filter
D	20	25							Output Cath. Bypass
C84	4	100	45X361	PRS150/4		BR415		TVA-1402	Stabilizing Cap
C85	330	500	47X470	1468-0003	D6-331	5W5T3	GP2K-330	19C14	RF Coupling
C86	500		47X508	S1500	D6-501	5W5T5	GP2K-500	19C32	FM RF Cathode
C87	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	FM RF Grid
C88 A	100		76X4	S1100	D6-101	5W5T1	GP1K-100	19C11	RF Coupling
B	100			S1100	D6-101	5W5T1	GP1K-100	19C11	RF Coupling
C89	2.2		47X557		TCZ-2.2				Osc. Coupling
C90	.05	200	B66503	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C91	30		47X558	S130	D6-330	5W5Q3	GP1K-30	19C24	Osc. Grid Cap
C92	20		47X518	S120NPO	TCZ-20	5R5Q2	NPOK-20	MS-42	Fixed Trimmer
C93	2.2		47X557		TCZ-2.2				Osc. Feedback
C94	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	Osc. Anode Bypass
C95	130		47X559		TCN-130		N750L-130		Fixed Trimmer
C96	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	Conv. Plate Dec.
C97	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	AVC Filter
C98	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	1st IF Plate Dec.
C99	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	1st IF Screen
C100A	50		47X112	S150	D6-500	5W5Q5	GP1K-50	19C28	Diode RF Filter
B	50			S150	D6-500	5W5Q5	GP1K-50	19C28	Diode RF Filter
C101	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	2nd IF Decoupling
C102	220	500	47X468	1468-00025	D6-221	5W5T25	GP2K-220	1FM-325	Diode Load Cap
C103	2700	500	47X492	S12700	D6-272	1W5D25	GP2M-0027	1FM-335	De-emphasis
C104	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	Filament Bypass
C105	68	500	47X471	S168	D6-680	5W5Q7	GP1K-68	19C10	Tone Comp.
C106	.04	200	B66403	P688-04		PTE6S4		6TM-S4	Tone Comp.
C107	.004	600	B66402	P688-004	D6-402	PTE6D4	GP2M-004	6TM-D4	Tone Comp.
C108	.005	600	D66503	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C109	220	500	47X468	1468-00025	D6-221	5W5T25	GP2K-220	1FM-325	AF Amp. Plate
C110	.1	400	D66104	P488-1	DF-104	PTE4P1		4TM-P1	AF Amp. Plate Dec.
C111	.02	400	D66203	P488-02	DF-203	PTE4S2		4TM-S2	Audio Coupling
C112	.001	600	H66102	P1088-001		PTE16D1		MB-D1	Output Plate Bypass

TRUETONE
MODELS 2D1093A, 2D1094A

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R96A	3Meg	½	40X289	Q13-140	AG-67-Z	AN-85	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R96A per instructions
R97A	500KΩ	½	36X386	Q13-133X	AK-80	BTSK-66-S	Volume control - Tapped ⓐ 100KΩ
B	Shaft			Not Req.	KSS-3	Not Req.	Attach to R97A per instructions
C	Switch		Not Req.	76-1	SWB	Not Req.	Attach to R97A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	
R98	22KΩ	½	B85223		Osc. Grid
R99	47Ω	½	B85470		Parasitic Supp.
R100	1000Ω	½	B85102	BTS-1000	Osc. Anode
R101	1000Ω	½	B85102	BTS-1000	Decoup.
R102	470KΩ	½	B85474		FM RF Amp. Grid
R103	220Ω	½	B84221	BTS-220	FM RF Amp. Cathode
R104	470KΩ	½	B85474		Mixer Grid
R105	100KΩ	½	B85104	BTS-100K	AVC Network
R106	68Ω	½	B84680		1st IF Amp. Cathode
R107	6800Ω	½	B84682	BTS-6800	1st IF Amp. Screen
R108	1000Ω	½	B85102	BTS-1000	1st IF Amp. Plate Decoup.
R109	1Meg	½	B85105	BTS-1Meg	AVC Network
R110	2.2Meg	½	B85225	BTS-2.2Meg	AVC Network
R111	68Ω	½	B84680		2nd IF Amp. Cathode
R112	2200Ω	½	B85222	BTS-2200	2nd IF Amp. Decoup.
R113	27KΩ	½	B85273	BTS-27K	De-emphasis
R114	6800Ω	½	B84682	BTS-6800	Ratio Det. Diode Load
R115	6800Ω	½	B84682	BTS-6800	Ratio Det. Diode Load
R116	3.6Ω	½	43X223	BW-½-3.6	Ratio Det. Filament - Wire Wound
R117	100KΩ	½	B85104	BTS-100K	AVC Network
R118	47KΩ	½	B85473	BTS-47K	Diode Filter
R119	15KΩ	½	B85153	BTS-15K	Tone Compensation
R120	10Meg	½	B85106	BTS-10Meg	AF Amp. Grid
R121	470 KΩ	½	B85474	BTS-470K	AF Amp. Plate
R122	47KΩ	½	B85473	BTS-47K	AF Amp. Plate Decoup.
R123	470KΩ	½	B85474	BTS-470K	Output Grid
R124	270Ω	½	B84271	BTS-270	Output Cathode
R125A	1000Ω	4	43X224	1 3/4AA-2500 †	Filter - Wire Wound
B	1400Ω	6			Filter- Wire Wound

† Set Slider To Read Approx. 1400Ω From Transformer End Of Resistor.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T7	117VAC ⓐ .54A	520VAC CT ⓐ .082ADC	5.1VAC ⓐ 2A	6.3VAC ⓐ 2.5A	53X290			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T8	4100Ω	3.6Ω	475Ω	.2Ω	51X134	A-3823	A-3019	RO-9	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.6Ω	12A490	ST-102 Model P12-S	12A6A	
	CONE DIA.	V. C. DIA.				
SP2	12"	1"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	IRC PART No.	
L28	FM Ant. Coil	.3Ω		35A9		CLA-4.7	4.7 Microhenries
L29	RF Choke	2.3Ω		35A8		CLA-3.3	3.3 Microhenries
L30	FM RF Coil	0Ω		9A2066			
L31	FM Osc. Coil	0Ω		9A2067			
L32	Parasitic Supp	0Ω		9A2103			Wound On 1KΩ Resistor
L33	Loop Antenna	.1Ω	1.4Ω	9A2100			
L34	Cathode Choke	2Ω		35A5		CLA-2.2	2.2 Microhenries
L35	AM Osc. Coil	.5Ω	5.5Ω	9A2065	14-1073		
L36	1st AM IF	12Ω	14Ω	9A2062	16-6758		
L37	1st FM IF	1Ω	1Ω	9A2060	16-3487		
L38	2nd AM IF	12Ω	14Ω	9A2063	16-6758		
L39	2nd FM IF	1Ω	1Ω	9A2061	16-3487		
L40	Ratio Det. Trans.	1.2Ω	.2Ω	9A2064	17-3487		

RADIO PARTS LIST (Continued) MODEL 2D1094A

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA					REMARKS
	TRUETONE PART No.	ASTATIC PART No.		SHURE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M4		AC-AG-J	A-AG	W26B	A66U	

ASTATIC AND SHURE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					TRUETONE PART No.		
M5	Bayonet	6-8	.15	Brown	7A103		Type No. 47
M6	Bayonet	6-8	.15	Brown	7A103		Type No. 47

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M7	Switch	2A397	Function (TV-Phono-AM-FM)
M8	Tuning Cap	14A209	(17-50MMF, 14-187MMF)
	Escutcheon	4X1073	
	Knob	10X755	Control
	Dial Glass	58X734	
	Pointer	15X251	

RADIO PARTS LIST MODEL 2D1093A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
V30	RF Amp.	6BA6	6BA6	7BK	Used in model 2D1093A
V31	Converter	6BE6	6BE6	7CH	
V32	IF Amplifier	6BA6	6BA6	7BK	
V33	Det.-AVC-AF	6AV6	6AV6	7BT	
V34	Power Output	6AQ5	6AQ5	7BZ	
V35	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C113A	40	200	45X381	AF844F		UP42225		TVL-3540	■ Filter
B	40	150		PRS25/25		BR202A		TVA-1205	▲ Filter
C	20	25							Output Cath. Bypass
C114	.05	200	B66503	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C115	.02	200	B66203	P488-02	DF-203	PTE4S2		2TM-S2	RF Amp. Screen
C116	.05	200	B66503	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C117	30		47X558	SI30	D6-300	5W5Q3	GP1K-30	19C24	Osc. Grid Cap
C118	.02	200	B66203	P488-02	DF-203	PTE4S2		2TM-S2	Osc. Anode Bypass
C119	.05	200	B66503	P288-05	DF-503	PTE4S5		2TM-S5	Decoupling
C120A	50		*76X1	SI50	* PC-50	5W5Q5	GP1K-50	19C28	Diode RF Filter
B	50			SI50		5W5Q5	GP1K-50	19C28	Diode RF Filter
C121	.05	200	B65503	P288-05	DF-503	PTE4S5		2TM-S5	Audio Coupling
C122	68	500	47X471	SI68	D6-688	5W5Q7	GP1K-68	19C10	Tone Comp.
C123	.04	200	B66403	P688-04		PTE6S4		6TM-S4	Tone Comp.
C124	.005	400	D66502	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C125	.1	200	B66104	P288-1	DF-104	PTE4P1		2TM-P1	AF Amp. Dec.
C126A	250		†	SI250	D6-251	5W5T25	GP2K-250	19C13	AF Amp. Plate
B	10000			BPD-01	DD-103	PTE6S1	821-01	36C1	Audio Coupling
C127	.004	600	D66402	P688-004	D6-402	PTE6D4	GP2M-004	6TM-D4	Tone Comp.
C128	.001	600	F66102	P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Output Plate Bypass

* Items C120A, C120B, And R136 Are Combined Into One Unit.
† Items C126A, C126B, R141A And R141B Are Combined Into One Unit. Mfgrs Part No. 76X5.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R126A	500KΩ	½	40X310	Q13-133	AG-60-Z	BSK-60	Tone Control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R126A per instructions
R127A	500KΩ	½	36X372	Q13-133X	AK-80	BTSK-66-S	Volume control - tapped @ 100KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R127A per instructions
C	Switch		Not Req.	76-1	SWB	Not Req.	Attach to R127A per instructions

RADIO PARTS LIST (Continued) MODEL 2D1093A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	
R128	100KΩ	½	B85104	BTS-100K	AVC Network
R129	1000Ω	½	B84102	BTS-1000	RF Amp. Cathode
R130	22KΩ	½	B85223		RF Amp. Screen
R131	47Ω	½	B85470		Parasitic Supp.
R132	22KΩ	½	B85223		Osc. Screen
R133	4700Ω	½	B84472	BTS-4700	Osc. Anode
R134	2.2Meg	½	B85225	BTS-2.2Meg	AVC Network
R135	470Ω	½	B84471	BTS-470	IF Amp. Cathode
R136	47KΩ	½	76X1 *	BTS-47K	Diode Filter
R137	270KΩ	½	B84274	BTS-270K	AVC Diode Load
R138	1800Ω	2	C84182	BTB-1800	Decoup.
R139	15KΩ	½	B84153	BTS-15K	Tone Compensation
R140	10Meg	½	B85106	BTS-10Meg	AF Amp. Grid
R141A	500KΩ	½	ⓧ	BTS-470K	AF Amp. Plate
B	500KΩ	½		BTS-470K	Output Grid
R142	47KΩ	½	B85473	BTS-47K	AF Amp. Plate Decoup.
R143	270Ω	½	B84271	BTS-270	Output Cathode
R144	820Ω	2	D84821	BTB-820	Filter

* Items R136, C120A, And C120B Are Combined Into One Unit. See C120 For Parts Listing.
ⓧ Items R141A, R141B, C126A And C126B Are Combined Into One Unit, Mfgrs Part No. 76X5.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T9	117VAC ⓐ.258A	310VCT .05ADC	6.3VAC ⓐ 2.46A		53X291	P-6119 ②		PH-70

② Add Series Resistor To Reduce Plate Voltage.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T10	5.3KΩ	3.1Ω	440Ω	.8Ω	51X134	A-3849	A-3019	RO-9 ①	① Drill One New Mtg. Hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	
SP3	PM	3.2Ω	12A477	ST-115 Model P8-V	8A21	
	CONE DIA.	V. C. DIA.				
SP4	7 7/16"	9/16"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
L41	Loop Antenna	0Ω	1Ω	9A2114		
L42	RF Coil	3.8Ω	5Ω	9A2117	14-1072	
L43	Osc. Coil	.6Ω	7.2Ω	9A2113	14-1073	
L44	1st IF	12Ω	14Ω	9A2112	16-6758	
L45	2nd IF	12Ω	14Ω	9A2063	16-6758	

PHONO CARTRIDGE and NEEDLE

ITEM No.	REPLACEMENT DATA					REMARKS
	TRUETONE PART No.	ASTATIC PART No.		SHURE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M9		AC-AG-J	A-AG	W26B	A66U	

ASTATIC AND SHURE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED.

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					TRUETONE PART No.		
M10	Bayonet	6-8	.15	Brown	7A103		Type No. 47
M11	Bayonet	6-8	.15	Brown	7A103		Type No. 47

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M12	Switch	2A403	Function (TV-Phono-Radio)
M13	Tuning Cap	14A213	(25-574MMF, 14-452MMF, 15-199MMF)
	Escutcheon	4X1082	
	Knob	10A759	Control
	Dial Glass	58X736	
	Pointer	15X251	

WEBSTER-CHICAGO
MODEL 130

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MODEL 130

WEBSTER-CHICAGO MODEL 130

TRADE NAME	Webster-Chicago, Model 130
MANUFACTURER	Webster-Chicago, 5610 Bloomingdale Ave., Chicago 39, Illinois
TYPE SET	AC Operated Phono Player with 3 Tube Amplifier
TUBES (THREE)	Types 12AT6 AF Amplifier, 50C5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC RATING .24 Amp. at 117 Volts AC

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WEB. CHIC. PART No.	STANDARD REPLACEMENT		
V1	AF Amp.	12AT6	12AT6	7BT	
V2	Power Output	50C5	50C5	7CV	
V3	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WEB. CHIC. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	150		PRS150/40-40		EDL44215		TVA-3451	Filter Red
B	40	150		-40					Filter Red
C	20	150							Filter Blue
C2	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Phono Isolation
C3	.0005	600		1468-0005	D6-501	5W5T5	GP2K-500	6TM-T5	Tone Comp.
C4	.002	600		P688-002	D6-202	PTE6D2	GP2M-002	6TM-D2	Audio Coupling
C5	.01	400		P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C6	.005	600		P688-005	D6-502	PTE6D5	811-005	6TM-D5	Tone Comp.
C7	.02	400		P488-02	DF-203	PTE4S2		4TM-S2	Output Plate Bypass
C8	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Line Isolation

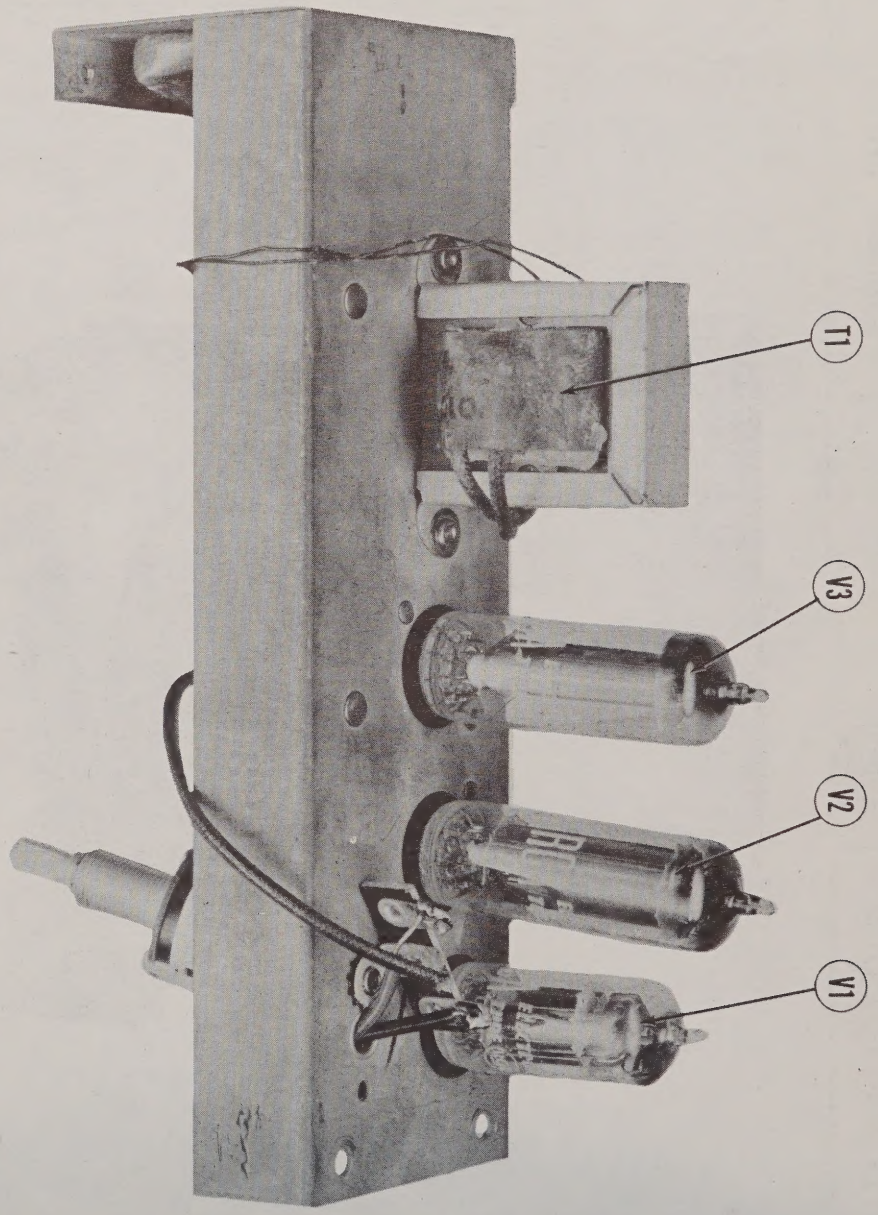
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	WEB. CHIC. PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1	1Meg	½	31PO55				Volume control
R2	1Meg	½	31PO55				Tone control

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WEB. CHIC. PART No.	IRC PART No.	
R3	500KΩ	½		BTS-470K	Tone Compensation
R4	1Meg	½		BTS-1Meg	Volume Control Shunt
R5	4.7Meg	½		BTS-4.7Meg	AF Amp. Grid
R6	500KΩ	½		BTS-470K	Diode Load
R7	200KΩ	½		BTS-220K	AF Amp. Plate
R8	150Ω	½		BTS-150	Output Cathode
R9	1000Ω	½		BTS-1000	Filter
R10	100Ω	½		BTS-100	Filter
R11	27Ω	½			Rectifier
R12	150Ω	10	29PO52	1 3/4A-150	Filament Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WEB. CHIC. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	1.7KΩ	3.3Ω	175Ω	.9Ω SEC.2 14Ω	67P017				

SPEAKER

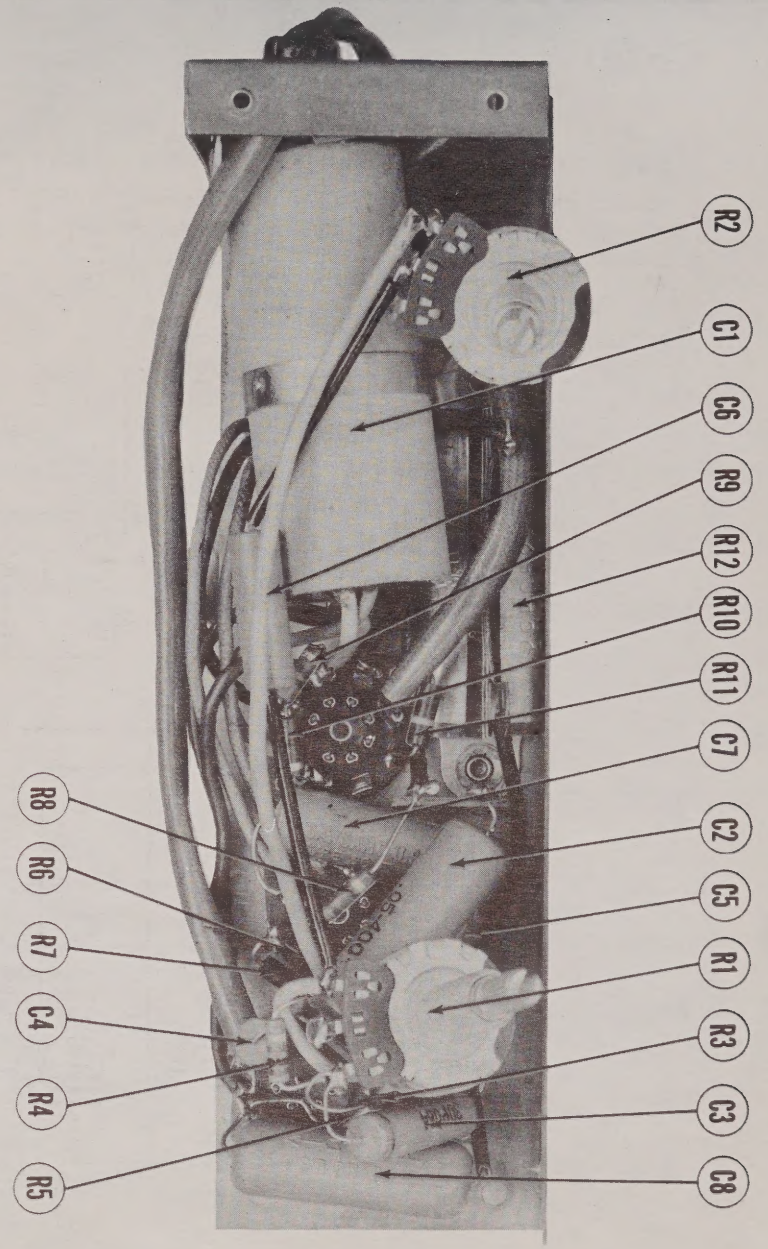
ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	WEB. CHIC. PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	3.3Ω	76P022	46J6	46A1	
	CONE DIA.	V. C. DIA.				
SP2	4"x6"	9/16"				

PHONO CARTRIDGE and NEEDLE

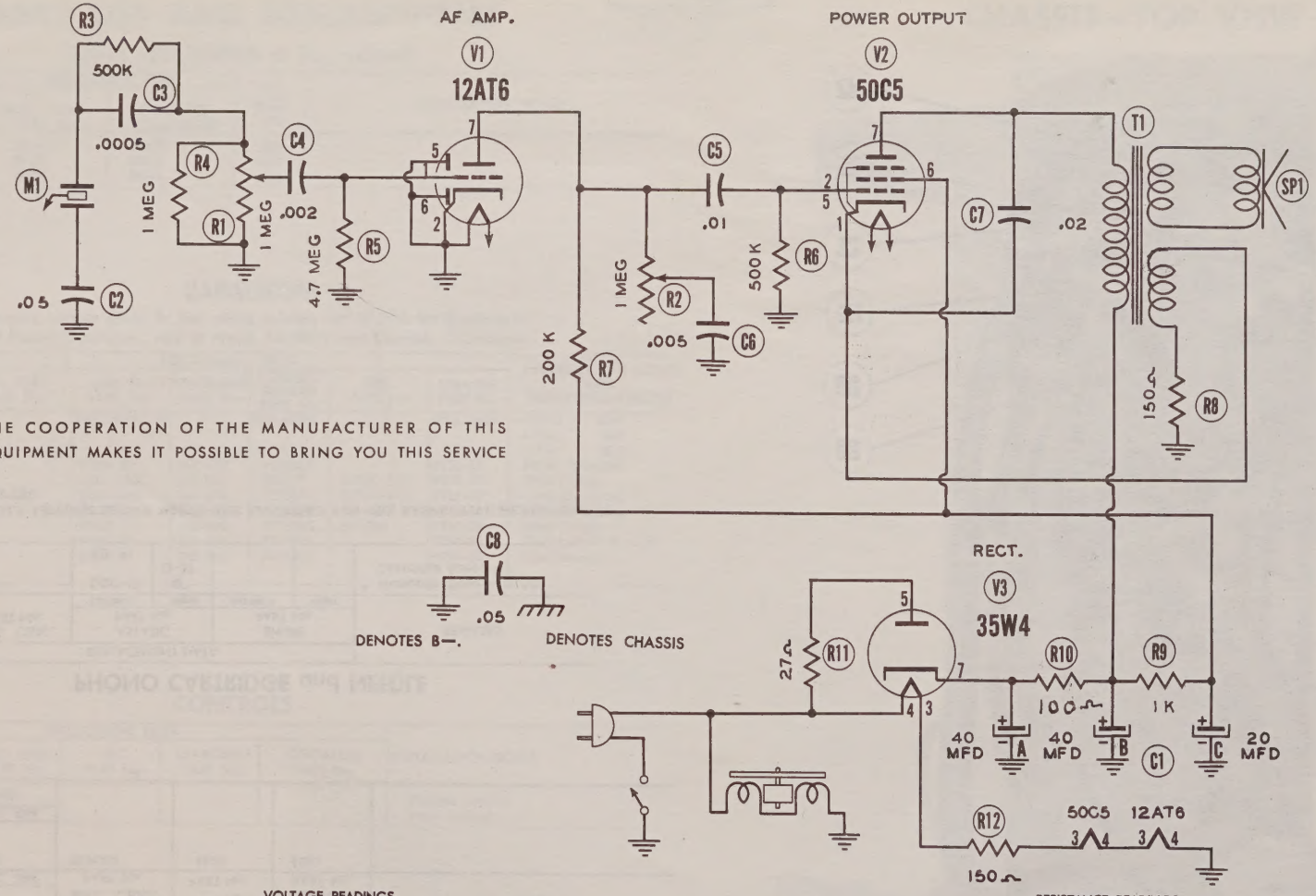
ITEM No.	REPLACEMENT DATA					REMARKS
	WEB. CHIC. PART No.	ASTATIC PART No.		SHURE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1		LQD-1J 8D *	"Q" Q-33			* Complete Tone Arm And Cartridge Assembly.

ASTATIC NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED.

CHASSIS—BOTTOM VIEW



WEBSTER-CHICAGO MODEL 130



THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AT6	-.8VDC	0V	13VAC	0V	0V	0V	50VDC
V 2	50C5	8.8VDC	0V	25VAC	13VAC	0V	115VDC	110VDC
V 3	35W4	120VDC	115VDC	80VAC	117VAC	112VAC	110VAC	125VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AT6	4.7 Meg.	0Ω	13Ω	0Ω	0Ω	0Ω	†200Ω
V 2	50C5	150Ω	500KΩ	65Ω	13Ω	500KΩ	†1.1KΩ	†275Ω
V 3	35W4	†100Ω	†1.1KΩ	215Ω	230Ω	260Ω	220Ω	35KΩ

† MEASURED FROM PIN 7 OF V3

A PHOTOFACT STANDARD NOTATION SCEHMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.